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Notes taken on a Tour through parts of Baloochistan, in 1838 and 1839, by Hajee Abdun Nubee, of Kabul. Arranged and translated by Major ROBERT LEECH.

In the summer of 1838, while residing at the court of the late
Preface. Meer Mehrab Khan Brahoee of Kalat, Hajee Abdun Nubee was introduced to me as a merchant from Mukrán, who had a fine riding camel in his possession, an animal I had been desirous of purchasing, since seeing one of them galloped round a ring, a feat I never before believed the bulky "ship of the desert" capable of performing. The riding camel, or mabree of Mukrán, however, is remarkable for the slimness and symmetry of its make, and for its consequent agility.

The Hajee's manner was very prepossessing, and his conversation showed him to be a man far superior to the generality of those with whom it had been my fortune for the few past months to associate. He spoke Persian of course, Arabic, Hindusthanee, and the Mukránee Baloochkee fluently, and Poshtoo tolerably. He had besides travelled much in Arabia and Persia, a little in Hindusthan, and had resided at different times for months together in Mukrán. For instance, in 1824, he spent eight months at Panjgoor with his father, who devoted a great part of his time to the instruction of children, and on that account became well known in these parts as "*Akhund Kabulee*."

This seemed a favourable opportunity, and one not likely again to present itself before my departure for Shikarpore, which was then fast approaching, for obtaining information of Mukrán and of the surrounding parts of Baloochistan; and as the Hajee informed me he had before been in the service of Europeans, I proposed to him that he should undertake this tour, promising him on its completion, the approval of the "Sarkar Company Bahadoor," and some compensation for the loss incident on the temporary abandonment of his mercantile pursuits.

On the Hajee accepting these terms, and after I had with the greatest difficulty induced him to receive a small sum of money to meet his expences, I furnished him with a passport in English, never to be produced except in situations of imminent peril; taught him the points of the compass; gave him his instructions which he fulfilled to the letter, and dismissed him with strict injunctions never to be seen near my encampment, or in communication with my people during the remainder of my stay at Kalat.

'On receiving my instructions and leave from Major Leech, I lost Preparations. no time in disposing of the remainder of my Bombay investment to the best advantage, and laying in a fresh one adapted to the Mukrán markets. The Bombay articles besides kariona (grocery,) and pingee (pedlery,) were the following cloths: jámdánee (coarse flowered muslin,) kamdonee (coarse muslin with colored flowers,) malmal (plain muslin,) gimty (dimity,) Korasan unbleached calico, shabee duryai or konawez (strong silk fabric of Yezd,) mushroo (coarse satin of Karachee.)

The only article remaining on my hands after disposing of the above was haldee (turmeric,) this I took with me to Mastung and bartering it for rodan (madder,) returned to Kalát, and there completed my investment with the following fabrics, which are articles of import to Kalát from Shikarpore, suparee (the common coarse cotton cloth of Sindh bleached and dyed with bakam woods,) telee (the common coarse cotton cloth of Sindh unbleached and dyed in madder,) cheent (coarse Shikarpoor chintz,) Shikarpore toosee (coarse cotton cloth of dark blue color with a white stripe,) Multan lungee (coarse thin dark blue cotton fabric with silk edge and ends,) kesh of Sindh (coarse cotton plaid,) and lyáf of Sindh (colored coverlid.)

These are only a few of the many exports from Kalát to Mukrán. I did not purchase more, as the above were quite sufficient credentials to support my character as a small merchant.

These preparations and an attack of illness at Mastung, delayed my departure till the 2nd October 1838, when I had the satisfaction of leaving Kalát, with the conviction, that not the remotest kind of suspicion was entertained by the Brahoes as to the real purport of my pending tour, and so emboldened was I by this, that I did not hesitate to take advantage of the escort of the Khan's Shahghásee, Noor Mahommed, who was on his way to Kech and Panjgoor to collect the revenue, with a body of 300 horse, foot, and camelry, (armed men mounted on the camels.) The title of Shahghásee is of Turkee origin, and is a corruption of Ishaka Kasie, an officer about imperial courts, whose duty it was to superintend the ceremony of presentation.

The office is sometimes hereditary at the Kalát court, and Deen Mahomed, the present man's father, was Shahghásee to Mahmood Khan, the father of Mehrab Khan. He had two sons, Ghulam Mohommed and Ghulam Ahmed. The duties of the Shahghasee are numerous; first he is master of the court ceremonies, to enforce the observation of which he is assisted by forty chobdars or macebearers. He is also head constable, and with his bailiffs or mahsoliaes executes all arrests, and he is moreover keeper of the sword of state, which office is not at all a sinecure, nor is the instrument an idle one, as with it he has himself to behead all state culprits; in this capacity he is called "*Meer Ghazab*," or "*Lord of wroth*." I mention that the office is sometimes hereditary, as in the time of Nasseer Khan, Mehrab Khan's grandfather, it was held by Shahghásees Barfee and Misree, of quite a different family from that of the present man.

Noor Mahommed is a khanehzad of the Khans; this word literally means "*home-bred*," or the progeny of a slave. Mehrab Khan has a large number of men, of which he has formed a kind of body-guard, and besides these slaves, Hindoos and a few Dehwans, allows no one to reside within the walls of Kalát. They are divided into several sects; viz. Khorasanees, or progeny of the captives made by Meer Nasseer Khan in his Khorasan campaigns; Gudads, or Sikh captives;

Kaloghzair, or Crowites, from their deep black color and descendant of slaves purchased in Beloochistan, or received as presents. One caste considers itself superior to another, when with aristocratic contempt, honour among thieves is only equalled by pride among slaves.

From Kalát to Rodenjoe, the first stage is one of 7 kos, the Rodenjoe. general direction of the road being S. W. The distance is unaccountably given as 25 miles by Pottinger. There are about 30 houses, and a few willows outside the village. The place is called Rodenjoe, or the canal of Roden, from a man of that name who first dug it. It is nearly dried up, and was not again reopened until about A. H. 1230, when Meer Mahmood Khan made a grant of the land to Mulla Izzut, who not only enlarged the spring, but dug a new *karez*, (subterraneous aqueduct,) which he called Alea Abad. At four coss from Kalát there is water in a stagnant pool or *kahnee*, which is situated in a rivulet bed.

From Rodenjoe to Suhráb is a distance of 12 coss, the general direction being south; from the former place four coss is Suhráb. Surmásung (antimony stone.) The present inhabitants of the neighbourhood do not remember ever having heard of this mineral being procured; Mulla Izzut discovered copper in the neighbourhood, as well as in two other situations near his estate, but was afraid to work it for fear of exciting the cupidity of Mehrab Khan. There is spring water at this place, which is often made the rendezvous of hunting parties from Kalát and Rodenjoe, but no vestige of the serai, mentioned by Pottinger, is to be seen. This is surprising, as a Persian proverb says, "if the Church is fallen, the chancel can be traced." From Surmasang 1 coss is Dambi Guhram, (*damb* meaning a small mound,) where there is one well which is never used, and a few yards further on, is a stagnant pool of brackish water in a rivulet bed, which is called Gandagen, or "stink." A short distance in advance is a cross-road, which leads to the two villages of Hajeekah and Gurgut. The former contains about 10 houses and a garden; there is running water in the place, which belongs to Nabsee Buksh Umaranee. From Gundagen to Suhráb is 7 coss over a level road; indeed the whole road from Kalát to Suhráb is a good gun one. In the valley are scattered 7 khels of Brahooes, and in the principal village, which is surrounded by a dilapidated wall, are 15 shops of Hindoos. There

is fine running water, but the chief part of the cultivation depends on the rain. A transit duty is levied here of 1 anna on each load, and supplies are plentiful and cheap. For instance, a fowl for 1 Kurreeem Khánee rupee, or 2 annas; a sheep for 1 rupee Kashonee, or 14 annas; and a scer of ghee for 6 annas. At this place the road to Kachee, through the Moora Pass, separates. The governor, or Jóe Nishein of Suhráb, is Taj Mahommed, an hereditary slave of Mehrab Khan's, being at the same time a nephew of the Khan's grandmother Beebee Khatijah, who was a slave girl of Meer Nusseer Khan. The government of each district is vested in a naib or deputy, who has a Jóe Nishein, or intendant, under him for every town of his collectorship.

From Suhráb to Gidar is 8 coss, general direction south, a gun road, the precincts of which are cultivated when there is rain. At

Gidar.

5 coss a little to the left of the road is a well which is the only water to be had in the stage. There is running water at this place from a *karez*, and to the north of the fort are mulberry and apricot trees. There are not more than 30 houses in the fort of Rodeenee Brahoes, under one Chattoo, who are at present at enmity with the Mahommed Hosainee Brahoes. The fort is a small insignificant one, like most forts in Baloochistan, being about 80 yards in circumference, and therefore only deserving the name of a watch tower; indeed they are only built for musquetry war. The ryots pay to Mehrab Khan "*uchi*," or a tithe of their produce, which varies according to the rain.

Here I parted with the Shahghásee, who was going direct to Panjgoor via Mashkai, and giving me much advice in charge to my friend Mulla Haibol Kashanee of Panjgoor; made up my mind to go by the short cut to Kharan, and put up for the night at the khel of Baiee Khan, chief of the Sumalodeg Brahoes to the west of the Gidar plain; he was an old acquaintance of mine, and therefore received me kindly. These Brahoes are not at all strict with regard to their females, and will give a stranger a bed in the family *gidon*, or goat-hair tent, even pressing him, in case he should not have lost his *kharasan*, modesty.

From this khel I next morning hired a guide for half *jorees* or

pieces of coarse cotton loth, and borrowed a riding camel from the Khan. Towards evening I arrived

Koh-i-Nirvisht.

at the top of the Koh-i-Nirvisht over an infamous road, hav-

ing at several parts to dismount and lead the camel. The general direction was West, and I should think the distance could be not less than 10 kos. The name of "Written Mountain," would suggest the site of some old inscription, but I could never discover the origin of the name. On the top of the mountain I found a stagnant pool of rain water, where I passed the night in the open air, which I found very cold.

Next morning I commenced the descent, and coming on a bullock's "halt," or encampment, bartered some pepper and turmeric for a little butter milk and butter; again proceeding still over a descent for six kos arrived at a well, where I breakfasted; again starting, I arrived at

Kharan. Kharan, at the fort of Meer Azad Khan Nowsherwanee towards evening, having I calculated come 12 kos from the top of the Koh-i-Nirvisht.

From Gidar to Kharan there is a road called Peeshukan, which turns the Koh-i-Nirvisht, and takes laden camels 3 days.

On arriving at Kharan, I proceeded direct to the *mehman-khanah*, or traveller's bungalow, and to my astonishment met Syud Ali Mahommed of Mastung, who had seen me at Major Leech's tent. He was very inquisitive, and his cross-examination was only terminated by the arrival of a man from Meer Azad Khan, requesting my presence in the fort. Here I was most graciously received on account of the friendship that existed between the Khan and my father. After that for my health, the next enquiry was of course for news from Kalát. I told him in a few words, that Shah Shooja-ul-Mulk was expected in Khorasan; that Mehrab Khan had determined to espouse his cause, and ended by advising him to bake his bread in the same oven. Before leaving him, he expressed his determination, that as soon as the Shah should arrive, he would send for me from Panjgoor, and despatch me to court as his envoy, with a *peshkush*, or tributary offering of some of his best riding camels and grey-hounds.

I passed the night in the *mehman-khanah*, and in the morning set about business.

The district of Kharan is bounded on the North by Koh-i-chhar Kahan, four hump hills and Kalag; on the South by the desert and Boundaries. district of Ruksan; on the West by the desert and WASHUK; and on the East by the Tozapeer and Koh-i-Nirvisht, sometimes

called Koh-i-Kond. Kalag is situated at the base of a perpendicular
 Kalag. called Rash-Koh, and is furnished with a small mountain
 stream by means of which are cultivated cotton, juwaree, and fruits, to
 a small extent, such as pomegranates, mulberries, grapes and peaches ;
 date trees also thrive here ; the rest of the cultivation of Kharande-
 pends on the rain.

The term Kalag is applied in Baloochistan to any small village
 Term Kalag. having a few huts and date trees, with a little water.

In the district of Kharan and Rukshan are twelve tukars, or divi-
 sions, as follows:—

Kaloguee Sirjapad.	Hurako.
Toolazai.	Hajeezai.
Toghapee.	Eessazai.
Miskonee.	Kulbodanee.
Jodan.	Kandooree
Gazakee.	Sujadpád-i-Dashlee.

Besides these, in the district of Kharan, are Sasolees and Halakzais.
 Meer Azad Khan has in his pay, constantly kept up, a body of 60
 Force. horsemen, mounted on his own horses, and might, out of
 the population of 3,000 men, collect 1,000 available in
 time of war. He collects no revenue in ready money ; that in grain,
 when the year is plentiful, may amount to 3,000 bags of wheat, barley
 and juwaree, besides 400 pats, or packages of dates, each
 Revenue. package weighing about a Company's maund. He never
 over-exacts fines ; he is not tributary to Kalát, but to Candahar, to
 which place he ought yearly to send 18 camels, 13 of which he collects
 Tribute. from Kharan and 5 from Washuk. There are two tribes
 in Kharan, who neither pay a tithe of their lands or ca-
 mels ; viz. Dagarees and Hijbarees. They are said to have been the
 original lords of Kharan before Azad Khan seized it.

The deputy, or Jóe Nishein of Meer Azad Khan is his brother,
 Fateh Khan, a perfect idiot ; whereas the former is a tolerably informed
 man for a Baloch. The ryots of Kalag however complain much of
 Fort. his extortions. The fort is a small mud one, the walls be-
 ing 160 yards in circumference, 5 in height, and 1 in thick-
 ness, having two entrances in the East. There is one well inside, the
 water of which is somewhat brackish.

A transit duty is levied here of 1 *jooree* or piece of coarse cotton cloth per load, and a tax is levied of 2 *joorees* on every camel purchased in the district, of which there are a great number, and 1 Rupee Kashanee on every load of grain.

The buildings and firewood are both from the *gaz* or tamarisk.

The productions of Kharan are wheat and barley, which are reaped in the beginning of June; juwaree, which is reaped in the middle of August; wool and ghee which are procurable chiefly in the latter end of May. The grain is exported both to Kalát and Panjgoor.

Ready money is scarcely known; every thing is bartered, and from cloth is the only approximation to a common standard of value.

In Kharan there are five or six ironsmiths and one Hindoo, whose capital does not exceed 1,000 rupees,—a large one for Baloochistan, however; there are many carpenters, and in Kalag there are 60 weavers.

The *kasa* of this place is a measure weighing 2-4 Company's seer, and the maund is somewhat more than 2 seers.

The imports to Kharan are joree cloth, suparee, telee, khesh and other Shikarpoor cloth. Articles to a small amount, adequate to the consumption of the district alone, as Kharan is not a bunder or central mart.

The best season for a merchant to arrive at Kharan is at *japab*, or spring, harvest time. The hire of a camel from Kalát is 5 Kashanee rupees, and from Gwodar 10 rupees. This year great profit was made by the export of grain to Panjgoor and Mukrán, where there is still a great dearth.

I remained five days at Kharan, and in the sixth I took my leave of the Khan, when I presented him with a vial of attar and an ivory fine tooth comb, which latter called forth great admiration, and of course intended for the mistress, whose favor very often leads to the esteem of the master of the house, although the lordly Mahomedan would not like to confess such influence even to himself. I also to day hired a riding camel to take me as far as the next stage for 3 *joorees*. On the 13th October 1838, being the 12th day after leaving Kálát, I left Kharan, and pro-

ceeded in a West and W. S. W. direction for 5 kos to Band-i-Bijad, over a level road, the cultivation on the precincts of which Band-i-Bijad. depends on the rain. At the stage are 5 or 6 *gidons* of Baloochees, and a number of tamarisk trees.

14th October.—Proceeded in a S.W. and West direction 10 kos over a level plain without water to Band-i-Kurreem Khan, where there are no habitations, although there appear to be a large number in the neighbourhood, judging from the large number of cattle and sheep brought at mid-day to be watered at the Band. I purchased one of the latter for one *jooree*, the fleece of which must have weighed nearly 12 seers, whereas the *jooree* was not worth more than $\frac{1}{2}$ Kashanee rupee. The water of this Band is not sufficient for the purposes of cultivation.

15th October.—Proceeded in a Westerly direction 4 kos, having on my right a jungle of tamarisk, and on my left the desert; and 4 kos further in a S. W. and S. S. W. direction over a desert plain to a well called Choh-i-Jalai, the water of which is rather Choh-i-Jalai. brackish; there are no habitations, and only a few tamarisk trees, which with the *kaghaz* bush, forms food for camels. From this stage to Washuk, there are two roads; on the one to the right there is no water, whereas there is water in three places on the one to the left; but without a very good guide, they are likely to be missed, and then God have mercy on the poor traveller.

16th October.—Taking water with me, I proceeded in a S. S. W. direction 6 kos, which appeared to men and animals 12, the road being over an undulating plain of loose sand; and spent the night in this *chol* or waste, in which however, there are *gaz* and *kaghaz* trees for the camels.

17th October.—Proceeded in a Southerly direction 2 kos to Washuk, having travelled from Kharan in the day time, for the purpose of seeing the road, whereas travellers invariably perform the journey at night, from the dread of thirst.

To the North of Washuk is Kharan; to the East Kal; to the South Rakshan; and to the West Gormdel. To the immediate west and east, it is bounded by hills, to the north by waste and to the south by a ravine and hills. Wheat, barley and juwaree are cultivated at Washuk by the rain. There is also a

karez, that turns a small mill near the huts of Meer Kureem Khan Halikzai. The inhabitants of Washuk do not exceed 800 male adults. Of the five camels paid yearly to Kharan, the Halikzais furnish $\frac{2}{3}$ ds, the *nakeeb*s or serfs $\frac{1}{3}$ d, and the Kudhadonees $\frac{1}{3}$ d, the fractions being collected in wheat. The Halikzais do not pay a tithe of their lands, it having been remitted by the ancestors of Azad Khan of Kharan, as "the price of blood," or *khoon-bha*. The tithe of dates may amount to 400 pats or Principal Men. packages. The principal men are Kureem Khan, Alum Khan, Meer Sahadat, Ameer Khan, Juma Khan, Meer Bijad, and Fukeer Mahommed. Meer Azad Khan yearly sends a deputy to collect the revenue, but he does not, nor can he, hit them very tight. There is a small insignificant tower in Washuk, and the inhabitants store their grain in pits in the ground.

From Washuk to Jalk is an 8 days' journey, and to Kal 7 days.

A tax is levied on strange merchants of 2 jorees for every camel Duties. purchased, and they are numerous, and Kashanee import duty for every camel load of goods.

The inhabitants live in *gidons* in the summer, and in mud and mat huts in the winter; they use for firewood the *gaz*, *kanboor* and *kaghaz*; and for building, the date stem.

The productions which form articles of export are ghee, wool, dates, wheat, barley, and juwaree. Dates this year were with Exports. great profit exported to Kharan, Nashky and Welat, on account of the dearness of grain at those places.

There are no resident Hindoo tradesmen here, but a few come at the grain and date harvest time, which latter is Date Harvest. called *Hamen*.

21st October.—Having hired a camel for two jorees to take me as far as Panjgoor, made my preparations for starting. I found I was to have the company of Kurree Khan Halikzai, who on Companion. hearing of the Shahghásee's intended visit to Panjgoor, had been ordered to proceed to the latter place with 30 matchlockmen to hold out the fort of Khardábódan, which belongs to Muheem Khan Nowshervanee, uncle of Azad Khan, against the Khalát troops, until letters could be received from Sardar Raham Dil Khan of Candahar, who no doubt would write to Mehrab Khan, de-

precating any hostile proceedings against a relation of his vassal Azad Khan.

This day proceeded in a S. W. direction over a level road 10 kos to Chah-i-Sor. Chok-i-Gazo, and again at 7 kos to the right, under the same hill is another spring called Chakul-i-Kondai.

22nd October.—Started, and at 4 kos arrived at a rivulet bed, to the right of which are two pools of water, called Shah Dost-aph; here I spent the heat of the day, and again starting proceeded another 4 kos, where to the right in the hollow of a ravine is another pool, called Mazar-aph. Mazar-aph, surrounded by tamarisk trees. Here I spent the night, eating *kabab* and listening to Baloch lays, having purchased a sheep from a neighbouring *khel* for one *joree*.

23rd October.—After a ride of 5 kos arrived at a defile called Tang, where we alighted under the shade of tamarisk trees, and cooked our bread in the sand, first scraping a cavity under where the burning logs had been, putting the bread in, covering it up, and again lighting a fire over the place. The bread of course requires a little rubbing, brushing and dusting after being taken out of this patent oven; 2 kos further came to a narrow Pass along the side of a mountain very difficult for a single unladen camel, it is called Muradee Gwarjon. Muradee Gwarjon. Here I was obliged to dismount, as one false step of my camel would have precipitated me, if on him, into the abyss below. After passing this danger, I put up for the night one kos further on.

24th October.—Proceeded sometimes in S.W. and sometimes in a W. S. W. direction, 10 kos, over a very difficult mountainous road, in some places so narrow as scarcely to admit of a single camel passing; on the road, came on the Hadjee Kaur, or “Dragon’s ravine,” so called from a dragon that infested it, until Malik Dewar, a famous Baloch saint, whose tomb is at Washuk, converted it by his curse into stone just as it was retiring into its cave. A green colored stone is still pointed out with awe and reverence by the Baloches as the tip of the dragon’s tail. From the pools in this ravine we filled our *masheks*, or water bags, as there was no water to be expected at the stage which has not even a name, not being a fixed one. The mat flag is plentiful in the Kaur.

25th October.—Proceeded in a S. W. direction in the bed of a *kaur*, or ravine, 6 kos between hills to Panjgoor, which I should say bears directs S. W. from Washuk. No forage for horses is to be procured on the road.

The district of Panjgoor is bounded on the West by Tang and Param; on the South by Balogatar; on the East by Grishk and Boundaries. Rakshan; and on the North by a part of the range called by Pottinger, the *Mach*, or date tree mountains, which is known on the Panjgoor side as Sobz-Koh, or green mountains.

The following are the villages of Panjgoor according to their size;

Villages. viz. Eesai, Bunistan, Tasp, Khudabadan, Gormkon, Washbood, Sordoo, Sori Kouron, Kalag, Damb and Eraf Chitkan and Duzanaph. The Kouri Rakshshan runs through the valley of Panjgoor

Rakshan River. from East to West; but some of its water reaches the sea on account of the number of bunds thrown across it, and canals drawn from it for the irrigation of the *Dasht* and *Koochag*, or remote lands. The greater part of the cultivation depends on the rain, which is owing to the ignorance, and partly to the apathy of the inha-

bitants, as water is to be found within 10 and 15
Capabilities of soil. *kulach*, or fathoms of the surface. Were it not for

this apathy of the cultivators, and short-sightedness of the government, the cultivation might be doubled and trebled. The productions are

Productions. barley, wheat, beans, and peas, in the beginning of summer; and rice, juwaree and dates in the beginning of autumn, cultivated with the river water; wheat and red juwaree are produced

Nature of Soil. in the high lands where there is rain. The soil of Panjgoor is a stiff loam.

In the village of Eesai are two *karezes*, one called *Waramood* and the other *Shakaruk*, both commenced in the skirts of Sabz-Koh, and Karez. terminated under the Rakshshan Kour. The gallery of the *karez* is a very wide and high one, and seems a work of such incredible labour, that the present degenerated men of Panjgoor believe it to be that of giants or genii. Panjgoor is ruled by a deputy governor, or *jode nishan*, on the part of Meer Mehrab Khan, who is a slave, by name Mulla Peer Mahommed, who collects only half the revenue; the other half belonging to the tribe of Giehkees, who according to popular belief, became possessed of it in the following manner:—

The Gichkees are believed, and believe themselves to be a colony of Gichkees. Sikhs, and this belief is supported by the fact, that they are the only tribe in Baloochistan that do not allow the razor to touch their heads. Their reason for originally settling at Gichk was, that they found the inhabitants very peaceable and unresisting. Soon after their arrival, they commenced forays in the Panjgoor district, the inhabitants of which place not able to resist them, laid a complaint before their governor at Kech, who was a descendant of Cyrus, who lent them a force with which they succeeded in nearly exterminating the Sikhs. But the few that remained, took refuge among the Brahoes, and got them to join forces to attack Kech; to this they consented only on condition of having half of all the conquered districts, which they enjoy to the present day. The Gichkees are fond of surrounding the common bedstead, on which they carry their dead to the grave, with a red silk cloth, which is divided between the gravedigger and priest.

The governor on the part of the Gichkees is Meer Ahmed Gichkee, Governor. son of Meer Hasan, who was Meer Nusseer Khan's son-in-law.

The revenue in ready money amounts to 2,000 Kashanee rupees, Revenue. six of which go to a Seetaranee ducat, and that in grain may amount to 10,000 Panjgooree, or 500 Company's maunds at the tithe rate for the summer crop, and $\frac{2}{3}$ rds of the same quantity for the autumn crop. The revenue derived from dates also, at the tithe rate, amounts to about 6,500 Company's maunds. This fruit is so plentiful, Exuberance of Dates. that cows, asses and camels are partly fed on it; the very dogs get their share, and in winter horses are given date water instead of the pure element. The Panjgoorees even declare that some of them remember once when the Rakshan Kaur swelled to an extraordinary degree, and carried away part of their date groves, that embankments were made of purchase* of dates, to stop the devastation, and divert the current. The Brahoes of the north soon get ill at Panjgoor, whereas the Mukránees look upon it as their paradise; snow some- Quality of Water. times falls here. The river water is much superior for drinking to that of the *karezes*, which is very indigestible.

The principal men of Panjgoor, with Meer Ahmed, are Mulla Principal Men. Haibatim Kashanee, Mulla Boiceyan Ibrahim, Sher

* Sic. in MS.—parcels?—EDS.

Mahomed, Meer Zaly Keenazair, and Meer Ghulam Hussain Kambaranee, a man of superior talents and what is more, scarce, veracity; Konda Noman and Meer Sala, Meer Shah Sevai, Meer Suzad and Malik Deenar.

The men of Panjgoor are at enmity with the Nowsherwanees of Kharan and Kooshan.

The principal fort of Panjgoor is that of Eesai, it is 1,200 paces in Fort. circumference, its walls in some places are 10 yards high, in others 5, and in others a man can run up. There are three wells inside, said to be of the time of the Kaiganees kings, which are not used. It is a very old fort with a small one outside, to the west are the remains of a half driven mining gallery. The ground on which the fort is built, is of the stiff loam called in Baloochistan *kurk*.

From Panjgoor to Beloo is 15 days' journey over a good road; to Roads. Kalát 12 days for laden camels, via Gidur; before arriving at which latter place, there is a difficulty to be surmounted. From Panjgoor to Kech 7 days, without habitations, except at Bankada, the 5th stage. Grazing for camels being at all times plentiful, but grass for horses depending on the rain.

To Ormara 15 days, and to Gwadar 12 days, via Ashap and Keel Kour.

The domestic animals of Panjgoor are camels, sheep and goats in Animals. plenty; cattle, asses, and a few horses belonging to the chiefs. There are no buffaloes.

The wild animals are hogs, deer, foxes, horses, and jackals, which latter are very troublesome.

The fruits of Panjgoor, besides dates, are pomegranates, grapes, figs, Fruits. mulberries, lemons, limes, peaches and apples; some of these just in sufficient quantity to swear by, as the Khajee, who when asked "*Baghe daree*," have you a garden? answered "*Bhale darum*," yes, I have one.

The dates of Panjgoor, which last three months, that is, from their Dates. first appearing to their disappearing from the trees, are exported in every direction. They consist of seventeen different kinds, such as *muza watee*, *kaloot*, *subzo rabaiee*, *dandaree*, *kuroch*, *satharo*, *jawansor*, *kuraba*, *hush kuch*, *papo*, *washkouk*, &c.

The Panjgoorees pride themselves much on their dates, and a farmer when they are ripe, will look up at the red and yellow clusters,

and exclaim, "Ah what a heavenly halo." The *rabaiee* dates literally mean "*godlike*," and the *sabzo* are called "*Protect like*." They have even verses in praise of this fruit.

The manner of fecundating the female date trees as given by Pottinger, is quite correct, with the exception of one point, *i. e.* no incision is made in the core of the female tree, but a stalk of the male bunch is inserted with its powder in the half-opened bud of the female, which is then hid up for four or five days; the male flower does not lose its qualities by being kept 4 or 5 days after being cut. The Baloochees cut the fresh male bud with the last year's dates.

The trees are climbed with a strong stiff wisp of flags, tied to the climber's waist and the tree.

Dates are chiefly exported in two states; 1st, *khurma*, or dates ripened on the tree; 2d, *chuwara*, or dates plucked when beginning to ripen, boiled and dried in the sun, chiefly of the kinds *kaloot*, *sabzo*, and *mazawatee*. Half ripe dates called *darupruch*, especially of the kinds *doudaree*, *sabzo* and *washkouk* are much esteemed for immediate use; they are sometimes cut in halves and exported in strings.

The natives build with the date stem, and use it as well as the
 Wood. dried mat flag or persh, as firewood. The higher classes
 Dwellings. live in mud houses, and the poorer in huts of trellis-work covered with mat flags.

This year was one of great scarcity, and the Hindoos sent for their
 Scarcity. grain from Gwadarán, unheard-of reversion of things like sending carraway seeds to Kirman.

Besides 25 small Hindoo resident traders, there are 20 blacksmiths,
 Artizans. 12 carpenters, 10 shoe-makers, 7 goldsmiths, 4 hut makers, and 500 weavers. Kalat merchants come at the autumn harvest to purchase dates, bringing with them the articles exported from Shikarpoor, while the merchants from Beloo bring Kashanee
 Merchants. rupees, and those from the bundur of Gwadar come at the summer harvest to purchase ghee and wool for the Bombay market, and bring with them Seetaranee ducats and Bombay groceries and cloths. The largest merchant of Panjgoor is Rahmoo, an agent of Mayan Bhattya, son of Moola Keechee; and has not a larger

capital than 8,000 rupees employed in trade; a very rich man for Panjgoor.

At Panjgoor is manufactured a coarse cotton cloth of two different breadths, both small, one called *semor* and the other *chhamar*. The weavers make comparatively little use of their wool at home; they merely manufacture felt rugs, as their fabric for the hot weather resembles bunting.

I bought some common shawls from Bombay, which I wanted 6 rupees Kashanee each for; the common remark made was, "Why should not the English be a rich nation? their merchants come and buy a couple of hand-fulls of wool from us for a few needles and gloves, work it into a fabric, and sell it to us for 6 and 7 rupees."

Among the groceries exported from Bombay, the cloves and cardamums are not eaten, but worn in strings round the necks of the women, and form two of the ingredients of a certain cosmetic, that is very prevalent and fashionable in the country, on which a great deal of money is spent; they also are put in a kind of pomatum made of sheep's tail and fat, and colored with lemon leaf, with which they smear their hair.

The following are the estimated yearly imports to Panjgoor:--

Coverlids, .. . }			
Telee Cloth, .. . }			
Japan ditto, .. . }			
Cotton Plaid, ... }	20 camel loads,		From Kalát and Kochee.
Lungee, .. . }			
Soosee Cloth, .. }			
Chintz, .. . }			
Madder, 10 camel loads,			
Nor, .. 20 ditto ditto,			
Lead, .. 2 ditto ditto,			
Salt petre, 5 ditto ditto,			
1 ditto ditto,			
Coarse flowered Muslin, }			
Checked ditto, .. . }	1 ditto ditto,		
Dimity and calico ditto, }			
Silk Daryai and Mashroo, 100 pieces,			From Bombay, via the
Groceries 18 camel loads,			seaport of Gwadar.
Pedlery, 1 ditto ditto,			
Silk Thread, maunds,			
Handkerchiefs, 5 camel loads,			
Pearl, Coral and Glass Beads, 500 rupees' worth,			

The rupee current is the Kashanee rupee, the Seetaramee ducat, and the Mahommedee rupee. The latter in accounts is reckoned as $\frac{1}{4}$ of Kashanee and $\frac{1}{2}$ of it is called Shaithan, which latter they have no lower fraction.

They measure nothing, every thing is sold by weight; 1 Panjgoor Weight. maund, 2 Company's seers, and a fraction; 24 *kejas* 1 maund, and the *keja* weighs 8 Kashanee rupees.

A merchant, sending an agent to Panjgoor, fixes the amount of capital which he is to trade with, and the agent receives half the profits; but should the agent himself require an addition to the original amount, the merchant charges him interest for the same, and deducts the amount from his half share of the profits.

The merchants from the sea ports seldom receive ready money for their articles, but cloths or *gudh* of the kinds *sermar* and *chaimar*, manufactured at Panjgoor, generally at the rate of 20 cubits the rupee; with this and ducats, wool in large quantities is alone purchasable.

The hire of a camel from Gwadar is one Seetaramee ducat.

The peculiarities in the appearance of the people of Panjgoor are, that the men seldom gird their loins or wear a turban, but a bag cap; and the women divide their hair into two horns, which they stiffen with gum.

The Panjgoorees have peculiar habits; for instance in summer, they sleep quite naked, having thick curtains round their beds as a double preventative against mosquitoes and heat; and when they feel unwell, they are very anxious to procure raisins or apricot kernels, which latter they consider a specific even in cases of dimness of sight.

There is a common custom, when a boy is circumcised, for his father to proclaim to the assembled guests some grant of land or chattels, instead of bequeathing it to him at his death; and before a boy puts on his wedding clothes, he is taken without the village, and washed with soap in public, for the satisfaction of the bride's relations, with cold water even in the middle of winter.

A Balochanee will not give her daughter to an Affghan, for fear of her heart breaking under the strict, decorous seclusion in which she would be obliged to live, and the girl herself would hold in detestation a shaven-headed youth, without a couple of long locks for her to comb and oil. The Balochee also objects to eat horse-flesh.

The Baloochees have a great prejudice to travelling. It is a common thing to hear a mother wish a wayward son a journey to Kabul; even the pilgrimage to Makka is regarded with a feeling of shame, something approaching to that of being obliged to beg; and the Baloch pilgrim is much commiserated, and perhaps not a little despised, for foregoing the pleasures of love-making and fighting, prominent characteristics of the innate disposition of a true Baloch.

The Baloch of Panjgoor differs in the pronunciation from the Baloochky of Scindh. The former having the letter *s* for *th*, as the Panjgoorees call a mother *mas* instead of *math*. They also change the *kh* into *k*; their dates they call *koorma* instead of *khoorma*, and a teacher *ahmed* instead of *akhund*. They moreover substitute *g* for *gh*, as they call a razor *istarag* and not *istaragh*. They also change *kh* into *k*, as they call an uncle *nako* and not *nakho*.

Illness detained me at Panjgoor for nearly a month and a half, and my resolution was nearly failing me. Indeed had I not accepted the small advance of money from Major Leech at Kalát, nothing would have induced me to prosecute my journey. The people of Panjgoor, moreover, tried to alarm me, by their sketch of the character of the chief of Koohag, which place I had been instructed to visit. However, I procured a letter of introduction from Meer Ghulam Hussein Kamburanee, and hiring two matchlock-men, set out.

10th November, 1838.—Travelled in a westerly direction 8 kos, Bunsang. over a good level road to Bunsang, where I found water, wood and fodder for the camels, but no habitations; and next morning starting at day-light, and proceeding in a W. N. W. direction over a tolerable good road 9 kos, arrived at Askan Koh, or Deer

Askan Koh. Mountain, a place without habitations, having crossed the Askan Kour, or Deer Rivulet.

12th November.—Eight kos over bad road in a W. N. W. direction, Mashkad. brought me to the other side of the Kour, or river Mashkad, into which six streams are said to discharge themselves. Sudden swells are so frequent, that it has received the appellation of “Suwas Bondi Zantáláh, implying, that the man deserved to be a cuckold who should be so foolish as to stop in the least, even to tie his shoe.

13th November.—Four kos over a difficult road in a N. W. by W.

Koohag. direction, brought me to Koohag, which I approached

with fear and trembling. On my arrival I was immediately summoned to the presence of Murad Khan Kausherwanee, the chief, who is cousin of Azad Khan of Kharan; my companion reminding me that I had been warned not to attempt the road. After salutations had past, the Khan seemed on the point of asking me how I had been so bold as to enter his territory with merchandize without his invitation; I therefore forestalled him by requesting a few words with him in private; taking him on one side I told him that his cousin had expressed a wish to see his nuptials with his deceased brother Mahommed Khan's widow celebrated at Panjgoor. "Ah Ahmed," said he "but the lady does not fancy me." I replied, "Can it be possible that

Charm. you are not aware of the efficacy of my charms? I will give you four if you will keep them secret, one adapted to each of the four elements, one of which at least must suit the constitution or disposition of the lady." I at the same time delivered my letter of introduction, which was a very strong one, and taking my leave, joined my companions, who were astonished to see me return whole in property, as the Khan had been previously heard to say, that the game had come itself to the fowler. Koohag is bounded on the north by the Koh-i-Segaham, beyond which is the district of Chagai, inhabited

Antimony. by Regees three stages distant. In this hill is produced a kind of inferior antimony, which is brought by the Regees with the salt of Peer Kaisae to Panjgoor; it is not used for the eyes, but for camel and sheep sores.

There is little cultivation, but that of the date and nearly half the land composes the estate of Meer Murad Khan, son of Muhim Khan, brother of Meer Abbas Khan of Kharan. He has no retainers but his own slaves, with whom he exacts a little revenue, 3,000 Panjgoor maunds grain, 50 Co.'s maunds dates, and 400 rupees from his neighbours, the inhabitants of Goruk and the Koh Baloch, who pay it from being subject to his forays.

Some years back a detachment of Persians from Kirman, under one Abul Kasam, laid siege to Koohag, but were obliged to retire, content.

Friends and Enemies. ing themselves with one blind camel as tribute. Meer Murad Khan is on good terms with Mohummud Shah of Silb, who is indeed his uncle, with Meer Gojigan of Dezak, and with his cousin Meer Azad Khan of Kharan; at the same time he is at enmity

with Meer Ahmed Auchkee and Mulla Haibalan Kashanee of Panjgoor. His father Meer Muheem was such a tyrant, that he was styled the Nadir of Mukrán, and was said never to have been able to eat any thing that was not stolen. There is another cub of the old wolf alive,

Fort. called Kadar Buksh. The fort of Koohag is 130 yards in circumference, and 30 yards high, and with walls 2 *guz* thick.

The fort is full inside to half the height of the walls, and Baman Baman. has one gate to the East. On the West are the remains of an old mining gallery driven by the Persians, not with the inten-

Mine. tion, as might be supposed, of blowing up a bastion, but of getting at the well inside, and then preventing the garrison drawing water, and this according to the ideas of a Baloch, is the only use of a mine.

The Shahghásee of Mehrab Khan once besieging Koohaghut, was after a time obliged to return to Panjgoor on forage failing. The fort stands on *Kurk*, which may be sand there, and not loam. I staid

Kurk. four days at Koohag, and on the fifth, 18th November, started and proceeded in W. N. W. direction over a tolerable road, with water on it 8 kos to the Kowr-i-Mashhed; another road to Julh is via Kuwarbastan, a small village to the N. W. Kour-i-mush-hed. of Koohag, situated at the foot of the Sujahan mountain.

At this stage there are no habitations, but plenty of fodder for camels, and firewood.

19th November.—Proceeded over a good road in a W. N. W. direction 8 kos to Ispandak, which belongs to Meer Jahangeer Ispandak.

Khan Nowsherwanee, uncle of Meer Azad Khan of Kharan; the place is pleasantly situated, and is well cultivated, consisting of about 100 huts. I here exchanged $\frac{1}{2}$ lb of black pepper for 2 large fowls, for having which large quantity with me, they conferred on me the title of Mulla Pepper. Luckily the chief was absent on a foray, but notwithstanding this, the people managed during the night to steal a donkey of mine. I intended to await the return of the Meer, in hopes of recovering Mr. Long-ears; but the Mulla of the mosque I spent the night in, told me, I might think myself fortunate in getting the Short-ears, or camels, with their loads safe out of the place, which he advised me leaving immediately, and for which advice may his store increase.

20th November.—Proceeded 5 kos in a N. N. W. direction over a level road to Dehag, and then 5 kos due North over a difficult road to Kallagan, which is a pretty place, but infested by a set of very inquisitive and troublesome people, who levy a tax of 2 seers of grain on every camel load of merchandize. I had an attack of fever at night, and next morning when preparing to start, was stopped by a man, who was desirous of purchasing some of the madder I had with me; I concluded a bargain with him, 2 Co's. maunds for 2 ducats, while at the same time he had managed in examining the goods to extract a skull cap, without my noticing him. I this day also did a little business with the ladies, bartering needles for eggs, at the rate of one of the former for two of the latter, and at night gave my hostess, the

Mulla of the mosque's wife, some rice and meat to cook for me, which she succeeded in boiling down to just one-half, no doubt, good lady, with the best motives, and from a regard for my health, as well as in consideration of my fever.

22d November.—Proceeded 7 kos in a due North direction, which was a level road, part in a rivulet bed and part over a plain to Jalk a,

collection of 9 small forts or towers, surrounded with cultivation, among which the fine *papo* date is conspicuous. The chief of this place is Maddat Khan, who declares himself by descent a Kuresh Seyud. The principal fort, which was once of some consequence, was destroyed by a detachment of Nadir Shah's army. It has a ditch, and is 900 yards in circumference, its walls being 40 *guz* in height. After the time of Nadir Shah, this place paid a tribute of 600 rupees to Candahar; but they have now no head even among

themselves, who can enforce tribute of the 600 rupees. Jalk or Jalak, which literally means "desolated," paid 400, and Kallagan 200 rupees. At this place are now to be seen traces of a Persian garrison, there being outside the fort several domes ornamented with glass enamelling worked into figures.

The principal men next to Maddat Khan, are Rais Janbeg, Rais Jonoo, and Rais Bhaieean; these men would have no hesitation in inviting Meer Gajeean of Dezak to Jalk, should Maddat Khan attempt to assess them; indeed they have already as a check, put his brother Alam Khan in possession of one of the small forts of

Jalk. The brother of Maddat Khan, Dilawar Khan, holds a fort of his own, called Kohen Kalát.

One of the forts belongs to Meer Sulla Husarzarai Regee, who is said to be able to collect 1,000 men ; he is at enmity with the Mahommud Sonnee Brahooes.

Jalk is bounded on the East by the dry lands of Mashhed, and on the other sides by hills.

From Jalk to the shrine of Peer Kaisar is a 6 days' journey for laden camels, and from thence to Seishtan is 6 more over a sandy desert.

I remained 6 days at Jalk, when I disposed of some mushroo, and on the 7th day, being the 29th November, started and proceeding in a due West direction over a tolerable road 5 kos, arrived at Singan, a small fort belonging to Kamal Khan Regee, a great thief, but a good host ; the place is well cultivated by a running stream, and supplies are plentiful.

30th November.—Eight kos in a due West direction over a good road Nahoo. brought me to Nahoo, a small village, well supplied with water, provisions and firewood, which latter I found very necessary, as the place and weather were very cold. I put up in the mosque, and was soon surrounded by questioners, who expressed their surprise at seeing a person in my apparent circumstances proceeding on a pilgrimage, as the generality of pilgrims begged their way. I explained to them, that according to our law, the pilgrimage was only ordained for persons in easy circumstances. They then seemed astonished at my having come this road, as the road thence to the south was a very difficult one, over which horsemen were obliged to lead their horses, and which Mulla Haroon, the great saint of Dezak, of whom I shall hereafter have occasion to speak, had named Peel Sarat, on account

Jak-i-Lukman. of its narrowness. They also mentioned a road to the West on which 3 kos from Nahoo was a mountain Pass, or *jak*, called Jak-i-Lukman, from the philosopher of that name, who cut the road out of the mountain. To the north of Nahoo is a mountain called Sufed Koh, in which the natives believe gold and silver to exist, and on which they say in the spring is a bush which at night from a distance appears on fire, but on approaching it, the delusion vanishes. I wanted very much to visit the Jak-i-Lukman, as I fancied it might

bear some mark of Alexander the Great, but snow fell at night, and made me abandon the project. From Nahoo across the Jak-i-Lukman to Gwasht is 10 kos, a place of 80 houses, well cultivated, and inhabited by people who call themselves Kuresh, and where there is said to be a slab with inscription on it. Thence 10 kos over a difficult mountainous road to a stage in the hills without habitations, and from that 8 kos to Gwasth, the first village in the Surhad district, over an easy road, infested by thieves of the Domanee and Bambaree tribes.

3rd December.—Left Nahoo, and proceeded due South across the Peel-i-Surut, a very narrow and extremely difficult Pass, there being springs both at the North and South side of the mountain 10 kos to Dezak. the village of Mulla Haroon in the district of Dezak, in which are situated seven villages; viz. Shash-toonk, Tarjae, Reyron, Mulla Ahmed, Meer Gajion; and the village of Mulla Haroon, which is the largest in Dezak.

To the West of Dezak is Panjgoor, and to the South a mountain,
Boundaries. beyond which is Sib; to the North is the mountain of Puli-Surtat, which is the same as that of Sirjahan; which beyond Dezak, turns to the North towards Southern.

The district is a fertile one, watered by *karez*, and the cotton produced here is famous throughout Mukrán; it is of two
Brown Cotton. kinds, white and light brown.

The chief of the district is Meer Gajian, who claims descent from
Chief. Shah Nyamutulla-i-Walee, his retainers are Domanees, and he is very popular in the district. When Abul Kasam invaded the country in Futteh Ali Shah's time, he levied 5 rupees on each Hanjan, or water-right of a day and night. Meer Gajion assesses the lands at $\frac{1}{10}$ th of the produce, and of the date produce he realises about 150 Company's maunds, besides 250 maunds of juwaree, and 150 maunds of cotton. The principal men of Dezak, besides Mulla Haroon
Principal Men. and Meer Gajian, are Khaleel Khan, Meer Rusheed, Meer Ameen Noorulla, and Mulla Ahmed.

The forts of Dezak are like those of Balochistan, of little consequence. There are at least 1,000 cotton weavers at this place, and the fabrics are exported in all directions; while wool, goats' hair, ghee and asafœtida are imported from Jushad. There are 100 Hindoo traders here, the principal of whom is an agent of Magon

Bhatya, of the port of Gwadur, who trades with a capital of 3,000 rupees. The mass of the inhabitants of Dezak are either weavers or small traders. From Dezak to Surbad is a 6 days' journey for laden camels, over a good road. A tax is levied of two Company's seers per load on merchandize, unless the merchant puts up with Mulla Haroon, when he is exempted.

The animals of Dezak are the same as those of Panjgoor, and so are the fruits and birds of the latter. The *konk*, partridge, however is more plentiful. I saw two cypress trees at Dezak and one at Kahoo; they are not to be seen at Panjgoor. The Dezakees build with the date's stem, and use it as well as the *kauboon*, as firewood.

On arriving at Dezak, I proceeded direct to the village of Mulla Haroon, and introduced myself as a merchant from Panjgoor, who was desirous of becoming a disciple. The saint himself soon made his appearance, and at the first glance I recognised him as one of those "*man poachers*," so common in Arabia, Persia, and Hindusthan. He appointed the second day for my initiation, and explained to his disciples, that I had seen a vision of him while in Hindusthan, and had then believed on him. I of course corroborated his statement. On reaching my lodgings, I found an entertainment awaiting me, which consisted of some bread and a mess of pottage, called *peegash*, the receipt for making it is as follows. To one ounce of sheep tail fat, add a gallon of water; boil and throw in $\frac{1}{4}$ th of bruised pomegranate seeds, $\frac{1}{2}$ a handful of flour and a little turmeric, and when this soup is on the groaning board before you in bowls, you may contemplate the little globules of fat floating on the surface, and compare them to eight stars in the azure firmament.

On the day appointed for the initiation, I repaired to the *akhund's* house, who after receiving me kindly, enquired whether I had performed my ablutions. In the fear of being ordered to do so in cold water, I replied in the affirmative. He then sat himself on the ground, and ordered me to do the same immediately in front of him; spreading over my head and his own a thick quilt, he ordered me to sink my head on my chest, and shutting my eyes, to look with my inward eyes into my heart, and repeat aloud the name

of God. This I continued to do for a full hour and a half, until my neck was nearly broken, and until I was completely exhausted from profuse perspiration, my confessor during this time being silent, and buried, I strongly suspected in sound sleep; at last awaking and perceiving my uneasiness, he removed the quilt, and telling me to hold my head up, asked what I had seen! I replied he knew as well as I did, and that it was not proper to reveal my stories; he smiled and said, he had great hopes of my becoming an adept. As I had taken with me a ducat, some sugar, and a piece of muslin for the saint, instead of *peegash*, I that evening received an entertainment of coarse rice. The old gentleman whose neck has absolutely grown stiff in the position he constantly keeps it in, was very anxious to see that the Dezakees did not impose on me, or cheat me in purchasing my madder, and offered to become my broker. I apologized and said, I could not trouble him with my worldly concerns, and that I would only do so with regard to my spiritual affairs; the truth is, I was afraid of his taking a fancy to sundry articles among my goods. I sold my madder at the rate of 10 Dezak maunds the ducat, and discharged the two matchlockmen I had brought with me from Panjgoor, giving them as part of their hire, one of my camels, which had suffered much from the cold. On taking leave of the *Peer*, he gave me a letter to Meer Mahommed Shah of Sib, and tied his own turban round my head. I remained 12 days at Dezak, having during this time despatched my manuscripts, for fear of accidents, to Gwadar on the 18th.

16th December.—Started and proceeded due South across a mountain Pass extending for 4 kos, the first and last 5 kos of which are over a good road. This mountain can be turned both to the East and West, and a good road thus procured the whole way. Sib is bounded on the

Sib. East by Dehsk; on the West by Pas-i-Kok, inhabited by Bar-

hanzais and Badowzais, which latter are originally of the tribe of the Seer of Sheeraz, who emigrated from that place in pursuit of the Koords of Sarhad, with whom they had a blood feud, and who owe them a blood debt; on the North by the detached mountains; on the South by a mountain, on the other side of which are the villages of Afshan and Erifshand.

The village of Sib is a small one, and has only been raised into importance by the forays of its chief, Mahommed Shah, son of Shah

Saffer, who claims descent from the house of Saffareea. Next Chief. in importance to him are Balooch Abder Ruman and Balleat. The cultivation of Sib is confined, and there are a few date trees. The chief has two sons, Nadir Shah and Taimoor Shah. The following are the places, tribes, chiefs and numbers that owe allegiance to him:—

	Place.	Tribe.	Headmen.	Matchlockmen.
	G washt,	Kuresh,	Mulla Mahomed,	100
	Erifshan,	Erifshanees,	Kadar Buksh,	200
Force.	Molatan,	Molatanees,	Mulla Meer,	400
	Deban,	Debanees,	Badeen,	100
	Pasi-Koh,	Burlianzais,	Khuda Buksh,	200
	Sohran,	Sohranees,	Baiee-on,	200

Mahommed Shah is held in great dread throughout Mukrán, Forays. and he has even carried his forays into the district of Ketch. He collects no revenue from Sib itself, which is nearly all

Revenue. his own hereditary estate. His revenue may amount to 5,000 maunds at 25 Company's maunds of grain,* 200 packages of dates, 125 maunds of juwaree, 80 maunds of cotton, 5,000 Mahommadee rupees of which gold and ducat,† and 1,000 sheep, and 2½ maunds of ghee. Besides these regular incomes, he forays to an extent, bringing home camels and prisoners, male and female, whom he sells for slaves. The fort of Sib is 450 yards in circumference, built on stony ground, and the citadel is an inner fort 120 yards; the height of the outer fort or *paseel* walls 8 *guz*, that of the *meeree* walls 25 *guz*. The *meeree* is full to half the height of the walls, the thickness of the remaining part of which may be ½ *guz*.

The people of Sib burn the *baranshok* grass, with which when green, they feed their horses and asses, &c.

On arriving at this place, Mahommed Shah was absent at Panjgoor, Reception. on a visit to his son-in-law Mahommed Aly Khan. His lady, a sister of Meer Maladad Gichkee of Panjgoor, whom my father administered a charm to, when suffering from the small pox, sent her nurse to me in the *mehman khana*, to apologise for her not coming herself, as 40 days had not yet elapsed since her delivery.

* Sic. in orig.—Eds.

† Sic. in orig.—Eds.

Next day I entered myself, taking with me a piece of jamdane and one of mashroo for her son, as well as a little *henna*, a few raisins and apricot kernels, for which in the evening I received a sheep roasted whole, which was a very acceptable change from the *peegash*, and penance of Mulla Haroon, especially to the few poor *Hajees* who accompanied me from Dezak. On the sixth day after my arrival, I expressed a desire to be going, but my kind hostess, who had entertained us every day, pressed me to stay, as Mahommed Shah was hourly expected, and would no doubt give me a horse or camel. I feigned great indignation in being offered any thing unlawful, such as stolen property, and asked her how she could expect me to accept such, knowing I had lately become a disciple of Moolla Haroon, and was not then two stages removed from the scene of my initiation. On this she presented me with a *kesh* of brown cotton grown on the family estate. In the afternoon, Meer Mahommed Shah arrived with 30 horsemen from Panjgoor, dressed as a Persian, black sheep skin cap, wide trowsers, and tight sleeves. As this chief, next to Azad Khan of Kharan, is of the greatest note in Mukrán, I intend dwelling at length on my intercourse with him.

Intercourse with
the Chief.

In about an hour after his arrival, he called to see me in the mosque, and enquired the news from Panjgoor which I gave him, and informing him, that I intended proceeding to Bampoor. He strongly advised Feroz Meerza. me to desist, at least to delay my departure, as Feroz Meerza, brother of Mahomad Shah, was expected from Narmeeas to invade the former place. To the delay I expressed myself inclined, as I should then have the pleasure perhaps of fighting the infidel Persians in his company, but in the mean time I expressed my intention of visiting Sarhad, and then proceeding to Bampoor. He asked me if it was true, that in Bombay there were fire-arms that were used without flint, priming or match, and on my assuring him of the fact, he commissioned a pair of pistols of the same kind, which I was not to forget to bring with me the next time I returned from Bombay. He also expressed his admiration of a small straight English sword, with a new scabbard that I had with me, and was much pleased with a few ball cartridges that I gave him. He asked me a great deal about British prowess by sea and land, their administration of justice, and their feelings towards Mahomedans and their own religious insti-

tutions, all of which questions I answered fully and to his satisfaction, as well as to that of several bye-standers, who immediately proposed taking service. They had heard of the occupation of the Island of Khaig (Karrack) by the English, and wanted to know why they did not come to Bumpoor, and from thence invade Kirman, as they themselves would be happy to enlist and join the expedition for a pecuniary consideration, and begged me to tell the officers at Karrack so.

23d December.—Having procured a guide from Mahommed Shah, I left Sib, and proceeded 8 kos over a good level road in a N. W. direction to Dolegeaban, a place containing a few goat-hair tents of Balooches and one well, where already, a shower of rain fell, and the weather was very cold.

24th December.—Proceeding 5 kos in the same direction over a good road, arrived at Pas-i-Koh, where I was lodged and entertained by one Bejad, who had heard of the kind treatment I had received from Mahommed Shah of Sib. These people do not at all bear resemblance to Balooches, as they say themselves, they are originally from Shiraz.

25th December.—Proceeded in a N. W. direction 10 kos over a good level road to a few huts of Damanees or skirter, (*daman*, meaning skirt of a hill.) This night rain fell heavily, and afterwards snow, which latter with cold piercing wind killed my camel.

26th December.—Proceeded still in the same direction 8 kos over a good road, sometimes on foot and sometimes mounted on a bullock that I had hired for 2 rupees from three miserable tents of Balooches, the inmates of which seemed hardly to have the wherewithal to subsist on, and yet they immediately put their pot on the fire, and commenced boiling a few handfuls of flour for me; this I declined partaking of, pleading their extreme poverty as an excuse, but really not feeling inclined to paste my inward man. They then advised me not to go to Turbad where there were thieves, who would certainly annoy me; if for nothing else, yet merely for my being a Sunnee.

27th December.—Travelled in a N. W. direction over a level road 6 kos to the village of Gwash, the first and principal one in the district of Sarbad, which is bounded on the East by Gwash; on the West by Varmasheel; on the North by the village of

Zameen and Koh-i-Diptan ; and on the South, by the Damin Erindagan and Koh-i-Beer.

The names of the villages of the district are, Zamin, Zamindan, Wafabud, Zyadatee, Khoon-i-kaka, and Nagul, and on the other side of Koh-i-Diptan, is a village called Sadoz, which is on the road to Hafsa-drah ; the districts are well cultivated and watered.

The chief of Sarbad is Maddat Khan, Koord, originally from Persia, and his dependents consist of Persians, Damanees and Bambarees. He collects $\frac{1}{5}$ th of the produce of the district, which may amount to 2,500 Company's maunds a-year, of wheat and barley, of which they reap two crops, besides presents of sheep and ghee.

There are no forts in the district, of any importance, the one of Gwash being 200 paces in circumference, and 6 *guz* high.

I was informed that on one of the sides of the mountain of Diptan, at a great height, was an artificial recess, containing two large
Diptan. vases, which they had on several occasions tried to reach, but without success, by fastening date stems one on the other. There is also, they informed me, at the bottom of the same mountain a stone, on

which is an inscription which has never yet been decyphered
Inscription. by the natives of the district, or by strangers. They moreover assert, that silver is to be found there, and that a Loree goldsmith was in the habit of paying yearly visits to the place, making a present of several ducats to the chief of Sarbad for permission to visit the mountain ; but on account of Maddut Khan's father once robbing him, he had never returned. I wanted very much to see these wonders, but was prevented by the snow.

Maddut Khan encourages forays, and exacts $\frac{1}{5}$ th of the plunder. They are not much at the Hefladrah, and sell their booty, which is sometimes valuable, consisting of Persian silks and Cashmere pashmeena, for a mere trifle in Sarbad and Dezak, on their return.

From Sarbad to Regan, the following are the stages : Kalag, Asaroo, Rodi Mahn, and Desert Regan, over a very difficult road.

The following are the animals of Sarbad, in the order of their multiplicity : goats, sheep, camels, asses, horses, cattle, wild
Animals. asses, wild goats said to furnish musk, wolves, jackals, foxes, tigers. Leopards are also found in the hills.

There is not a date to be seen, the fruits being pomegranates, wal-nuts, apples, peaches, mulberries, apricots, almonds, Khujak Fruits. pears. The inhabitants build very little; when they do, they generally use mulberry wood.

In the mountain of Beer, a great quantity of cardamums is produced, and about 20 camel loads are yearly gathered. Productions. In the Diptan mountain are produced sulphur, salamoniac, and at the foot of the same mountain is a hot spring; asafœtida is also plentifully produced. As the inhabitants of Sarbad are all thieves, as might be expected, there are no weavers or resident traders, but at harvest-time Hindoos come from Dezak with lead and saltpetre, which they exchange for ghee, wool, cardamums and asafœtida, for transportation to the port of Gwadar. I spent three days at Sarbad, during which I did not venture to visit Maddut Khan.

31st December.—Started, and proceeded 8 kos over a good road to a few tents of Damanees, where I reluctantly put up for the night; towardse vening after having dined, I requested a place in the tent, as the weather was very cold, which was refused me. I afterwards overheard them making conjectures as to my wealth, which they all agreed must be true, as I lived in what to them appeared a most extravagant style, eating rice and ghee. They moreover learnt from my guide, that I had been talking a great deal at Sarbad of mines and metals, and that I must therefore, for both these reasons, be an alchymist. In Alchymist.

fact they determined on stealing my *khoorjeen* or saddle bags during the night; watching was useless, as it would only increase their suspicions, in fact confirm them. I therefore had recourse to a lit-

tle conjuring that I had learnt in Hindusthan; first I cooked some dates and sprinkled a little tincture of bhang on those intended to be distributed to my hosts. I then ignited three pieces of camphor and set them floating in a basin, and having washed my mouth well with akkorah root and sal ammoniac, I held a bit of ignited charcoal in it, jumping about and pretending to utter incantations; afterwards beginning to get tired, I gave instructions aloud in Beloochee to what my host supposed were two attendant sprites to take care of my saddle-bags during the night, and blind and lame any one that attempted to lay hands on them. My host began now to get

really alarmed, and made most abject apologies for not having given
 Effect. me a place in the tent before; I took advantage of this impression, and insisted on their *champooing* me until I fell asleep. The next morning on getting up, my hosts complained of a head-ache, not being aware that they were intoxicated, and begged me for God's sake to blow on their temples. I called for some butter-milk, and writing on a slip of paper what they thought was a charm, immersed it, and ordered them to drink it off. After a short time they of course felt cooled and refreshed, and brought me a sheep as a present, and insisted my being their guest for that night also.

2nd January, 1839.—After being stopped by my hosts to pray for them I set out, and proceeding over a good road 8 kos, arrived at the
 Erindagan. village of Erindagan, where I no sooner had arrived than I was surrounded by a host of applicants for charms, for which they paid liberally in fowls, rice, &c. &c.

I here felt diminution in the severity of the cold. As I was proceeding next day on my journey, I was stopt by a man who entreated me first to cast a devil out of his wife. The lady it appeared to me was merely trying the extent of her lord's affection, and intended to judge of it by the degree of solicitude (evinced for her recovery.) Fainting and hysterics not being the fashion in Beloochistan, the ladies are obliged to have recourse to devils. I immediately caused her to be held down, and lighting a charm rolled up in rags, held it under her nose until she fairly repented of her experiment, and until I had impressed the spectator with a proper sense of my miraculous powers. I must give the lady great credit, however, for the zest with which she kept up the farce, speaking all the time as the devil within her, and at last swearing by king Solomon, whom the natives suppose to have been omnipotent over gins and evil spirits, that he (the devil) would never again enter into the woman. I was so pestered during the day for charms, that I determined on dropping a little of the *Peerzada*.

Erindagan contains about 50 huts, and the cultivation of wheat,
 Cultivation. rice, barley, and juwaree is comparatively extensive.

4th January.—Proceeded 10 kos over a difficult and sometimes hilly
 Apta. road to Apta, a place well cultivated from running water, containing 200 huts and groves of dates, and furnishing provisions in plenty. The chief is Hussun Khan.

Leaving Apta, I set off to the East to visit the fort of Mugas, the strength of which I had heard much extolled. Having dressed or rather undressed as a *fuqueer*. I spent this night in a *kour* or rivulet bed, and starting the next day, still proceeded in the *kour* to a few tents of Beloochees, who on my entry hastened to set before me all they had ; viz. coarse juwaree bread and fresh asafœtida.

6th January.—Having travelled 5 kos, arrived at Mugas, the far-Magus. famed, and found a square tower 30 *guz* in height and sixty paces in circumference. I was assured, however, that Abul Kasam Khan had besieged this tower, but found his guns would take no effect on it, it being *baman* for 20 *guz*. I here saw two of the finest horses I had ever met with in Beloochistan, they belonged to the chief, who is a Koord. I had taken the precaution of bringing a few needles with me, and could with the greatest difficulty obtain flour for them, the natives wanting them for love.

8th January.—Hiring a bullock to take me as far as Pahro for one Companions. rupee, I started in company with two Magases, and travelled till the afternoon in the same rivulet bed that I had come by, and stopping, commenced cooking coarse bread. My companions regarded my preparation with longing eyes, at last not being able to contain themselves, requested to be invited to my table. I expressed my surprise at their not having brought bread with them, as this was the first stage from their homes. They assured that they never tasted bread beyond once a week or twice at most, living entirely on dates. On going to sleep, I put some of the remaining bread under my pillow. The temptation to treat themselves was too great, and they stole it during the night, assuring me when I awoke, that the thief must have been a Tolak jackall.

9th January.—After a journey of 6 kos returned to Apta, once rather a good road the whole way, and purchased an ass, which animals are procurable very fine here, having an excellent quick amble ; every one, high and low, rides them.

11th January.—Proceeding 8 kos over a good level road to Pahiah, where I found supplies plentiful ; the chief is Ibrahim Khan.

12th January.—Ten kos further over a level road without water, through a jungle of *kanhoor* and tamarisk, brought me to Bampoor,

the direction being sometimes W. N. W., and sometimes due west.

This district is bounded on the East by Pahiah; on the West by Bampoor. Miskaton; on the N. N. W. by the hills of Bazman; and on the South by Sashar.

The following were formerly the feudal dependencies of Bampoor: Dependencies. Pahrah, Apsor, Bazman, Ispuka, Sashar, Miskotan, Erindogan and Damind. The district is a flat and very fertile one, producing wheat, barley and juwaree, and being watered from no less than 96 small canals, the harvest of Kolwa equals this—the seed of Bampoor, and the harvest of the latter place, only equals the seed of Narniasher. The land is allowed to be fallow for about two years, not so much on account of the poorness of the soil, as on account of the extent of the land, and comparative scarcity of cultivation. Both sugar-cane and indigo might, it appeared to me, be Chief. introduced with great advantage. The chief of Bampoor is Mahommed Ally Khan, son of Mehrab Khan-i-Lung, or the lame, by tribe a Narsee, from Nare, their original district, which is situated towards Seisthan. He has a force constantly kept up of 500 men of his own tribe, and 80 slaves of his own purchasing.

He collects his revenue at the rate of 300 Bampoor maunds per Land tax. *gooband*, a space of land which takes 400 Bampoor maunds to sow.

I estimated that each small canal watered 6 *goobands*, and that Principal Men. the Bampoor maund equalled the Company's seer. The chiefs of Mahommed Ally's own tribe had lately quarrelled with him, and had gone over to Prince Temz Mirza, to invite him to invade Bampoor. The principal men are, Siparsala, Meer Gazhee, son of Kamhae Zaburdust Navee. The allies of Mahommed Ally, or Mahommed Shah of Sib, are his father-in-law, Maddut Khan of Sarhad, Husen Khan of Aptar, Ibrahim Khan of Pahiah, and Muheem Khan of Miskotan. His enemies are Sar-Enemies, feraz Khan of Gik, Ghulam Khan of Sashar, Deen Mahommed of Kaseband, Imcheem Khan of Ispaka, and the Raises of Oodean, who are his mother's brothers. Of the ninety-six canals, eight are cultivated by the chief himself, and the rest by his tribe; from each cultivator, of which, at the harvest time, he requires

thirty Bampoor maunds of flour, one sheep and three maunds of ghee. Deputy. When Mahommed Ally is absent from Bampoor, one of his slaves and Meer Gazhee act for him.

The fort of Bampoor is on an eminence, it is of mud, and the suburb walls, which are insignificant, and those of the citadel, 140 paces. Fort. The height of the latter wall is 15 *guz* and their thickness $\frac{3}{4}$ *guz*. The citadel is full of loop-holes. There are three small dismounted guns. There is also a sally-port to the West, while the principal gate of the fort is to the East. There are three wells, one without the suburbs, another near the mosque at the S. E. angle of the fort, and a third also in the suburbs, and a fourth in the citadel, the water of which is brackish.

From Bampoor to Gik is 40 kos, to Kassurkund and Ramiskh 6 days' journey, to Sashu 2 days. There is a gun road, I was Road. told, direct to Nurmashee, as follows: 1st stage, Chah-i-Besahib; 2nd, Chah-i-Talazore; jackal well; or 3rd Chah-i-Shor, or brackish well; 4th Warzeen; 5th Giranreg; 6th Ah-goum; 7th Narinasher.

The animals of Bampoor are, first in number and consequence; asses, horses, camels, cattle, wool-goats, and sheep.

The inhabitants build with date stem, and burn the jungle trees and bark. The produce of the district consists of wheat, barley, beans, ghee, wool, juwaree and dates in small quantity, of which the ghee and wool are exported to the port of Chouhar, and the grain to Mukrán, where this year it was sold for treble its cost.

There are 5 weavers, 2 shoemakers, 10 blacksmiths, and 3 carpenters, but no traders, with the exception of one Hindoo, who is the Khan's store-keeper, and trades with about 2,000 rupees on his own account. There were formerly no less than 25 merchants here.

The cost of bringing merchandize from Chouhar to Bampoor is 10 rupees the candy, and no taxes are levied.

There are no measures, nor hardly can there be said to be a money Currency. currency; the maund equals our Company's seer, and the medium of value is either slaves or copper from Kirman and not from Bombay, or grain. The Seetaramée ducat is valued at eight nominal rupees, and Company's seer of copper at 4 rupees. When rupees are found, they are of the coinage called Riali Futteh Aly Shaha.

When a merchant for instance brings Bombay goods from Chouhar, he bargains in rupees, and then the purchaser asks him what Barter. he will have his rupees in, wool or ghee, and accordingly he receives the article he wishes at the rate of the Bampoor market for the time. The merchants of Dezak on the other hand, receive for their cloths, copper and slaves, which are not stolen, but are the trophies of mid-day forays in the confines of Kirman, and those brought from the neighbouring Belooch districts, who may at any time refuse to acknowledge the Khan. The merchants of Mukrán again, for their cloths and ducats, receive grain.

On arriving at Bampoor, I put up in the mosque in the town with several poor *Hajees* who had accompanied me from Dezak. In the evening, according to the custom of the Khan, bread was brought for us. As I wanted to form the acquaintance of the Khan under favourable circumstances, I resolved on shewing eccentricities; and accordingly returned my share of the dinner, saying, I made it a point never to eat the bread of extortioners and rulers.

The next day Mahammed Ally held a court without the town, and ordered musicians to be present; when seated and in the Invitation. midst of his entertainment, he despatched a slave of his by name Zaburdust, to invite me. I refused to go, saying, that I was a disciple of Mulla Haroon, and had vowed never to listen to profane music. This had the desired effect, the Khan's curiosity was excited to the highest pitch, and in a quarter of an hour he alighted at the

mosque to pay me a visit in person. After salutations and com- Visit. pliments had passed, he said, he supposed I gained no object in visiting him, I therefore had refused to come; whereas he had objects to gain, and had therefore come to see me. I expressed my anxiety to know those objects. First, and he in reply "God had blessed me

with no more beard than what is composed of the few scattered Requests. hairs you yourself perceive on my chin, and I am really ashamed to show myself in public. I want some specific to make a good beard grow; secondly, according to my predestination, I have been blessed with five wives, and live on good terms with them all, but hitherto has been impossible for me* — as you have seen a good deal

* Sic in MS.—Eds.

of the world, and must know much of human nature, pray give me the result of your experience of womankind."

The Khan seemed pleased with my company, and told the other *Hajeess*, that they might resume their journey, as he intended to make me stay with him. He then took me into the fort, and lodged and entertained me for several days. During which time he spoke much of the expected advance of the Persians, and showed me his preparations, which consisted of flooding a few yards of ditch in front of the gate. On my rashly suggesting the propriety of mounting his guns on carriages, he immediately insisted on my taking charge of the ordnance department, and becoming his Commandant of Artillery. I had thus completely committed myself, and saw a great prospect of my being prevented prosecuting my tour if I did not succeed in starting immediately. I therefore expressed my intention of setting out for Dangers of Route. Oodeean. To this he strongly objected, as the country was very unquiet on account of the rumoured invasion of the Sheeahs of Oodeean, who would certainly take me for a Belooch and seize and sell me accordingly. I therefore pretended, that after receiving his advice, I had changed my plans and now intended proceeding to Sásghár. I here parted with some of my mushroo to the wife of Mahomed Ally, for which with the greatest difficulty she paid me partly in rupees that she had sent for all the way from Kirman to make a few ornaments for herself of, and partly in old silver ornaments, which a goldsmith was sent for to remove from the handle of a family battle axe.

I purchased a camel here for seven ducats, and proceeded to take leave of the Khan, who first forced me on riding a donkey, and made me promise to send him the beard preparation by the first opportunity. I had previously pleaded my inexperienced youth and religious habits as an excuse for not taking upon myself to speak on subjects relating to the fair sex. While at Bampoor, the people often spoke of a gentleman who had come there in the time of Mehrab Khan-i-Lung, and purchased horses which he had paid for at Chouhar. He travelled with trunks and tents, took notes of the country, and was very fond of walking in the fields. They called him *Gurand Sahib*, (Capt. Grant,) and said he had been well treated during his stay, and also, that for two or three years after his departure, the people of Bampoor much dreaded an invasion.

24th January.—Leaving Bampoor, travelled in a N. N. W. direction over a level sandy road, through a walk to a pool of water, the inhabitants of the neighbourhood of which had fled from their homes.

25th January.—Travelled a level road with a few ascents and descents in a N. N. W. direction for 8 kos, when I arrived at Bazman. On approaching the fort, I was called to from the walls, and asked who I was; I replied “a *Hajee* ;” then said they, “you had better get some other place, as if you come in here, you will be seized with us.” I put up for the night outside the fort, and only succeeded in ascertaining that Bazman is bounded on the East by Erindagan; on the West by a high mountain; on the North by Rodimaher; and on the South by Miskotan. The chief is Shahbaz Khan, Chief. by tribe a Koord. Mahommed Ally of Bampoor had sent ammunition to the above chief, with which to hold out his fort, which is a small one, against the Persians. In the neighbouring mountain I was informed, that sulphur was to be found.

26th January.—Left Bazman, having procured a guide as far as Oodeean, and travelled all night over a desert waste for 10 kos, where I stopped, having no one with me but one servant, and the guide, which on arriving, went for water to some distance, the position of which I did not see.

27th January.—Travelled all night over the waste through a drizzling rain, and towards morning encountered a body of 13 men mounted on horses and camels, who challenged me, and on my informing them that I was a *Hajee*, they gave me the lie, and declared I must be a Persian spy as I travelled by night; my denying the charge with oaths was of no avail. I was ordered to lay down my arms on pain of receiving the contents of all their matchlocks; my servant threw down his gun, and the guide ran away.

The men immediately secured and obliged me to accompany the Capture. party till the morning was far advanced, when they halted and bound us; having searched my person, and secured some gold that I had brought with me from Dezak, they retired to a short distance and divided the spoil, consisting besides the gold, of the asses and their loads. Leaving us bound they then separated; seven taking the road to Bazman and Giranrey, and six that to the Bampoor waste. After remaining bound for some time, two men mounted on asses, seeming to

have come from the Bampoor waste, made their appearance, one of them took possession of my companion's nephew of Baloch of Dezak, and returned with him towards Bampoor, while the other insisted on my preceding him bound, on foot. This I did until my feet were blistered, and I began to limp, my captor urging me to go faster, and

telling me, that as nothing had fallen to his share but the Separation.

English sword, he intended selling me, and shortly afterwards giving me a push, the brute precipitated me with my hands tied behind me on my face among the stones. On recovering, I sat

Attempt at ecclai-
rissement.

doggedly down and invited him to despatch me. At this proposal he laughed, and said, that he would do nothing but sell me, as many better men than me of his tribe had been sold by Belooches. I denied being a Baloch, and explained to him that I was an Affghan, at this he appeared delighted, and said "so

much the better; that scoundrel Futteh Khan of Matters made worse.

Punoch is of your tribe and a *Sunnee*, who sells so many of us, saying it is lawful to rob an infidel *Sheeah*, and now thank God, I have got hold of an infidel *Sunnee* in return, with whose price I have no doubt I shall prosper." He, however, dismounted and put me on the ass, and we proceeded in this manner not at all in one direction until sunset, when we arrived at his encampment, which I learnt was in the district of Rodbar. By this time I was fairly exhausted with pain and thirst; conducting me into the tents, he introduced me to his mother as a lazy knave, who could not walk a mile, telling her, that he had got nothing of the spoil but my worthless carcase, every thing of value having been carried off by the Dashters.

The good woman seeing my beard besmeared with blood, was Compassion. moved with compassion, and upbraided her son for his ill treatment of me, reminding him, that I had no doubt "a mother," and requested him to anoint my feet with ghee; this he did with a very ill grace, reminding her all the time, that the man who killed his uncle was one of us Affghans. The next morning on awaking, my beard was so clotted with blood from the wound on my

Shave.

chin, that I had recourse to a pair of scissors, and made myself as smooth as my friend Mahommed Ally of Bampoor. I was confined to my bed sometime from fever, during which time several offers were made for me. One man offered a lean camel, while

another offered three asses ; but my master would take no less than two camels, at last they were offered, but fortunately for me Purchasers. my master changed his mind, declaring he would be able to get a good horse for me at Marmasher. This happened about the beginning of the month Mohurruum. A few days afterwards, a man arrived at the encampment, and gave out that the Persian friends under the prince had actually made a move, having according to their custom on setting out on an expedition, sacrificed a camel, and that Mirza Ally Raza of Kirman had arrived at Jeeraft to lay in supplies.

I was delighted to hear this news, as I was acquainted with the Meerza while in Persia, and I had hopes of being able to escape to the Persian camp, should it enter Beloochistan.

The new comer then looking at me, and seeing my plight, advised my master to release me, as "God knows," said he, "how soon you yourself may be a Persian slave;" which advice was not at all well received, and my would-be benefactor got nothing but abuse, which proved however most fortunate for me. For stung with the insult, he took the first opportunity when I was not collecting Friendly meant. wood to suggest my escape, promising he would effect

it for ten ducats ; to this I immediately and gladly agreed, notwithstanding I had my misgivings that he might sell me somewhere else. He appointed the second night for the attempt, and showed me a tree under which he would have a camel ready at dusk. On the day appointed, my master intended to have decamped for fear of the Persians, but it being the tenth of the month, a day of mourning for all *Sheeahs*, his departure was put off. On the day appointed, when

Escape. evening set in, I repaired with a trembling heart to the tree of rendezvous, where I found the camel tied and my friend asleep. I hastened to awaken him, and put myself on the camel behind him, telling him to take me to Ramishk. On starting he took a road however direct north for a short distance, when arriving at his encampment, he left the camel.

I preured two asses on which he lost no time in mounting; having refreshed ourselves with bread and milk ; and set out at a good quick amble over a strong road, in what I calculated to be a S. S. W. direction till morning, when we branched off the road at a right angle up a rivulet bed and dismounted, my deliverer returning on foot and effac-

ing the prints of the asses' hoofs. On the road I had frequently expressed my surprise at the rate our asses ambled, when Barre asses. he explained to me, that they were of the Barre caste, that is, a cross breed between the wild ass and the tame one, who are generally let loose in the jungles to graze. We were still in the district of Rodbar, and he informed me that the forts of the chiefs Suzad Khan and Mirza Khan were due west from the stage; here I went to sleep, while my benefactor kept watch on a neighbouring eminence.

27th March.—In the evening we again mounted and proceeded all night over an irregular and stony road through a waste, Rameshk. and towards morning, we arrived within sight of Rameshk, which place my guide, who gave me his name as Ally Maddat, refused to enter for fear of his being recognized, which disclosure would entail a feud he said between his people and those of my late master.

28th March.—In the evening again started and proceeded in a due east direction 10 kos, over a road in parts level and in others Kutech. irregular, to Kutech, a place containing 100 huts, where I would have had a fast, for my guide was afraid to enter the village, had I not gone myself and begged a few scraps of coarse bread and a handful of dates, on which we breakfasted.

29th March.—At noon we again started, and at sunset arrived at Motarabad. Motarabad on a level good road. At this place, which is a small one, Ally Maddat had a friend, from whom he procured a dinner of coarse bread and dates. At these two places tobacco. tobacco is cultivated to some extent.

30th March.—Started for Punoch which was seven kos distant, and on the road met a man mounted on the very identical ass that Mahommed Ally of Bampoor had given me, and sitting on my saddle Property recovered. bags. I stopped him, and made him return with me to Punoch, in the mosque of which place I took up my quarters. I had no difficulty in proving my right to the ass and saddle bags, from which latter, however, all the articles of value had been extracted. The man appeared to be very indignant at being suspected of theft, and set out in a great hurry, promising to return with the man from whom he had purchased the property; however I never saw him again during my stay at Punoch. I was not able to see Oodeean myself, for reasons detailed above, but while at Punoch, I gained the following information regarding it from Futteh Khan and Ally Maddat.

(To be continued.)

*Observations on the Flora of the Naga Hills, by Mr. J. W. MASTERS,
Communicated by the Government of India.
To Captain T. BRODIE, Principal Assistant Commissioner of Assam.*

SIR,—I have the honor to forward a few observations on the Flora of that part of the Naga hills, through which I had the honor to accompany you and Mr. Sub-Assistant Bedford during the last month, with a list of plants met with on the route. These observations, I fear, will be found very meagre; partly on account of our hurried march, partly on account of the nature of the country, and the season of the year; but more especially on account of my own ignorance of the subject; still they may be interesting to some, as they will show that the 500 different species here enumerated are found growing on those hills. This is but a small number for so large a breadth of country; but when we consider that they were all gathered on the line of march, and in a country inhabited by savages, where, had there been time, it would have been neither prudent nor practicable to leave the road to go in search of plants, 500 different species will be acknowledged to be as many as any one individual could expect to gather in the short space of one month. This number does not include all the different kinds of plants which I saw, but it includes the greater part of those from which I gathered specimens; and I here beg to observe, that I have put down in the list, none but such as I actually saw, and from which I brought away specimens. These specimens will serve for experienced Botanists to examine hereafter. Should you consider these observations to be interesting to Government, may I beg the favor of your forwarding a copy of them, should you have occasion to report on that portion of the frontier.

I have the honor to be, &c.

(Signed) J. W. MASTERS.

Seesagur, the 29th March, 1844.

Botanical Observations made in Upper Assam, during the month of February 1844, while passing over that portion of the first ranges of the Naga Hills, lying between the Dikho and Dhunsiri Rivers.

The Flora of this portion of the hills resembles, in a great measure, that of the more elevated parts of the plains, especially, as along the uncultivated banks of rivers, and by the numerous little streamlets that

wind through the forests, we find forms similar to those found in the ravines between the hills, while on the little hillocks near the foot of the first range, and on the broken ground called *khorkunee*, we meet with many plants that are common to the slopes. Still I met with many plants which I have never seen in the plains, and some of those which I have seen down here, are evidently not at home.

The *Naga Bhe*, *Gordonia integrefolia*, Roxb. is often seen in the plains, but on the hills it is much more common, and grows to a larger tree. I met with it in abundance on every hill.

The little ornamental flowering shrubs called by the natives *Photiki* and *Phoothola*, (different species of *Melastomæ*.) in the deep ravines with hills of 3000 feet of elevation on each side, assume the character of small trees, with stems from eight to twelve feet high, and three or four inches in diameter. As our route lay for the most part through ground which had lately been under cultivation I did not meet with so large a number of species as I had previously calculated upon. Could I remain with safety on these hills for three or four years, I doubt not but I should reap a good harvest, but hurrying over them in the manner we were compelled to do, very little could be done in examining the Flora. I presume it would occupy an experienced Botanist 10 years to explore the whole of the Naga Hills, from the Booreedihing to the Dhunsiri, in a satisfactory manner; none of them having been hitherto visited by any Botanist.

Leaving the banks of the Dikho on the 27th of January, at the spot where in 1840 I collected some of the Namsang coal, and where Mr. Landers subsequently collected a larger quantity on the part of Government, we ascended the hills, passing over undulated ground and low hills of various elevations. Arriving in the neighbourhood of the coal measures, we passed up the bed of a very rugged water-course, which though nearly dry now, must in the rains pour down its torrents with a frightful velocity. Passing on to near the summit of the hill, we encamped in a forest of bamboos, a little below the village of Namsang.

While rising the hill, I observed the following plants: *Mesua ferrea*, *Careya arborea*, *Ficus elastica*, *F. scabrella*, *F. species?* *Dillenia speciosa*, *Chaulmoogra odorata*, *Embllica officinalis*, *Artocarpus integrifolius*, *A. Chaplasha*, *Xanthochymus pictorius*, *Liristoma assamica*, *Guarea binecta*

rifera, Calamus hostilis, Goldfussia two species, Pladera, a most delicate interesting species; and in the village, on the very summit of the sandstone rock, 2153 feet above the level of the sea, Beaumontia grandiflora, and the common dwarf elder. All the Naga villages are built on the very summit of the particular hills on which they are situated, and this village of Namsang is situated on the highest point of the Namsang Purbut; it is thickly studded with houses and crowded with inhabitants, having pigs and fowls in abundance. The men appeared remarkably active and healthy, but the women and children, (especially those who are necessarily more confined to the crowded village) appear pale and sickly.

A reference to Mr. Bedford's map of the route, will shew the situation of the villages visited, from our leaving Namsang on the 29th of January to our quitting Sonareegong, and descending to the banks of the Dyung on the 26th of February.

In the villages and the inhabitants, I observed comparatively but little difference, save that from Namsang to Samsa, the houses are all large, high pitched, and more or less supported by bamboo frame-work; while from Mickelai to Nowgong, the sites of the villages not being so rocky, the houses are all low pitched, and seldom supported by bamboo frame-work. All the houses are roomy, strongly built, well, and often very neatly, thatched. The granaries, which are generally situated in a detached part of the village, are all supported by bamboo frame-work.

As the villages are all on the summit of the hills, where the naked rocks frequently rise above the surface, there is very little spare ground for gardens or cultivation of any kind in the villages; but on every little spot on which a few inches of soil is found, attempts are made at gardening. In these we found onions, mustard, tobacco, *sunu*, and a few stocks of sugar cane. I found the mangoe tree in almost every village, and some immensely large trees, as large as are generally found in Bengal; besides these, a few plants of the guava, peach, and plantain, with *Tagetes patula*, or the French marigold.

The cultivation of rice, millet, *kuchoo*, (Arum) pumpkins, ginger, capsicums, cotton and *rom* is carried on at a distance from the village, on the slopes of the hills. It appears to be the practice of the Nagas

to cut down heavy tree jungle, burn the trees and scatter the ashes over the ground, to cultivate this ground for two years, and then abandon it for ten years. Often I believe it is under cultivation only one year, and then abandoned for eight or ten, and this method agrees with the habits of the Nagas. With the implements they use, and the nature of the soil, the rapidity with which a body of Nagas will clear a large extent of dense forest is astonishing, and as they use no other implement but the *da*, they are ill prepared for digging. This single implement, the *da*, serves the Nagas to fell the forest, to dig the ground for his rice, to cut the food for his dinner, and to take off the heads of his enemies. The ground being prepared, the women put the rice and other grain in with a dibble. After the Naga has cultivated a piece of ground two years, and often one year only, he finds it so full of weeds, especially of the compositæ and labiatæ families, that it is not worth his while to sow it again, and he clears fresh jungle accordingly. The ground which I saw under cultivation two years ago, is now completely overrun with weeds and grass, and fresh jungle has been cleared in the neighbourhood for this year's crop. In the neighbourhood of Nangta, Kangsing and Nowgong, large tracts of ground were cleared ready for cultivation this season; some portions sown. The village of Kangsing is pleasantly situated on the summit of a rock, at an elevation of 2568 feet above the level of the sea, and commanding a fine view of the surrounding country. The houses were neatly thatched with different kinds of palm leaves. The leaves most generally used by the Nagas for thatching are *toko pát*, *Levistonía Assamica*, *jengoo-pát*, *Calamus hostilis*, *koosi-pot*, *Melica latifolia* and Dr. Wallich's palm, or *Wallichia caryotoides*; the different kinds are often fancifully intermingled, and bound on with a neat ridge of grass at the top.

At the village of Asimgia is a fine plant of the *sángoch*, or *Caryota urens*, one or two of these are generally met with in each village, as the soft hair in the sheaths of the leaves is used both by Nagas and Assamese for tinder. By the summary of villages visited, given below, it will be seen, that Lakhootee is the highest point to which we reached, 3700 feet, a considerable village. This peak is very conspicuous from the plains.

Summary of villages visited and elevations :—

	<i>Feet.</i>		<i>Feet.</i>
Namsang, ...	2153	Akook,	
Nangta,	2868	Lakhoota,	3700
Kangsing,	2568	Kbergong,	
Nowgong,	2825	Sanagong,	
Larayen,	2825	Nisang,	
Santoong,	3000	Bhidara,	
Deka Hymung, ..		Kahoong,	
Boora Hymung, ...	2875	Duria,	
Lassa,		Rungagong,	
Atringia,	2600	Kerngong,	
Kolaburia,		Sunka,	
Samsa,		Tillogong,	
Mickelai,		Sonareegong,	2150
Mohom,		Nowgong,	

List of Plants seen and gathered during the Journey.

EXOGENÆ.

ORDER.—*Ranunculaceæ*.

1. *Haravelia zeylanica*, DeC. An oramental climbing plant, common in the plains. Rungagong.

2. *Ranunculus* (species.?) Samsa. I was much surprised by not finding more of this family. I had calculated upon a considerable addition to my Herbarium in plants of this tribe, but the above are the only species I noticed, and those not frequently.

ORDER.—*Papaveraceæ*.

3. *Papaver somniferum*, Linn. The common white poppy ; this I found cultivated to a small extent in the last three or four villages, but did not meet with a wild species. Kaboong.

ORDER.—*Magnoliaceæ*.

4. *Liriodendron grandiflora*, Roxb. *Burumtooli*. An ornamental flowering tree. Kangsing.

ORDER.—*Anonaceæ*.

5. *Anona* (species?) Leaves alternate, short petioled, elliptic, ferruginous underneath. Mickelai.
6. *Gualteria* *Badajamba*, Wall. Sohohai.
7. *Uvaria* *macrophylla*, Roxb. An ornamental plant. Larayen.
8. *Unona* *undulata*, Roxb. Sohohai.

ORDER — *Dilleniaceæ*.

9. *Dillenia* *speciosa*, Thunb. *Oh*. A complete forest of this tree is found on the banks of the Dyung, but it is but thinly scattered on the hills. The fleshy scales of the fruit, *ohtenga*, are eaten as eagerly by the Assamese, as apples are eaten in England. Namsang.

10. *Delima* *sarmentosa*, Linn. Ditto.

ORDER.—*Araliaceæ*.

11. *Aralia* *digitata*, Roxb. A scandent plant common in the plains, often found growing on fig trees. Kangsing, Namsang.

12. *Aralia* *lucida*, Wall. A very ornamental tree, with shining leaves. Kangsing.

13. *Panax* species? Unarmed leaves, smooth, trifid or pennatifid, an ornamental shrub. Kangsing.

14. *Gastonia* (species?) Large ornamental leaves, long petioled, pel-tate, 7 or 8 partite, leaflets grossly serrulate. Lakhootee.

15. *Gastonia* (species?) Arboreous, armed leaves, long petioled, pel-tate, leaflets 9, smooth, acuminate to both ends, peduncles terminal, ferruginous, as long as the leaves. Larayen.

ORDER — *Vitaceæ*.

16. *Vitis* *latifolia*, Roxb. Kangsing.
17. *V.* species. Ditto.
18. *V.* ditto. Ditto.
19. *V.* ditto. Kahung.
20. *V.* ditto. Nangta.

These are vine-like plants not in blossom.

21. *Leea* *samburina*, Roxb. Sohohai.
22. *L.* species. Nangta.

ORDER.—*Olæaceæ*.

23. *Olax scandens*, Roxb. Leaves dotted, a large climbing ornamental plant. Kangsing.

ORDER.—*Combretaceæ*.

24. *Combretum* species. An ornamental plant. Kangsing.

25. *C. pilosum*, Roxb. Sohohai.

26. *Terminalia paniculata*, W. and A. A large ornamental timber tree, Larayen.

27. *T. chebula*, Retz. or *citima*, Roxb. *Hillika*. A large timber tree, common in the plains. Sohohai.

ORDER.—*Melastomaceæ*.

28. *Melastoma Malabrathricum*, Linn. A very ornamental flowering shrub common in the plains. Namsang.

29. *M. erecta*, Jack? Larayen.

30. *M. glauca*, Jack? A large and elegantly flowering plant, 10 feet high, leaves dotted. Sohohai.

31. *M. cernua*, Roxb. A very elegant species. Sohohai.

32. *M. curva*, Roxb.? Not in flower. Namsang.

33. *M. gracilis*, Jack. Not in blossom. Namsang.

34. *M. alpestris*, Jack? Ditto.

35. *M. obvoluta*, Jack? Ditto.

The *Melastomæ* are very common in the plains, but they grow to great perfection in the ravines in among the hills, as on the banks of the Sohohai, Tookum Jewry, the Bontook, the Teroo, and Duria Panee.

ORDER.—*Myrtaceæ*.

36. *Careya arborea*, Roxb. Namsang.

37. *Syzygium jambolanum*, DeC. Sonagong.

38. *S. caryophyllum*, Gavert. Larayen.

39. *S.* species. Ditto.

40. *Psidium pyrifera*, Lin. *Moodhriam*. Asringia.

This plant (the guava) though very common in the plains, and frequently met with at the foot of the hills, I did not see very common in the Naga villages. In the plains it is a common jungle plant.

ORDER.—*Loranthaceæ*.

41. *Loranthus* species, *Rugoo Nulla*. Kangsing.
 42. *L. globosus*, Roxb. Ditto

ORDER.—*Cucurbitaceæ*.

43. *Tricosanthes palmata*. Larayen.
 44. *T.* species. Not in flower, leaves deeply 5-lobed, lobes acuminate, strongly marked with nerves and veins. Kamgsing.
 45. *Bryonia scabrella*, Linn. Nowgong.
 46. *Cucurbita lagenaria*, Linn. *Mita Lao*.
 47. *C. pepo*, Linn. *Komra*. Lassa.
 48. *Luffa pentandria*, Roxb. *Doondool*. Asringia.

Nos. 46 and 47 must be cultivated to a considerable extent, as I saw large quantities of the fruit in all the villages, though it was not the season for the plants.

ORDER.—*Begoniaceæ*.

49. *Begonia* species. Diæcious, colored, every part hairy, stem procumbent, jointed, petioles from 12 to 18 inches long, leaves large, cordate, unequal-sided, acuminate, pilose on both sides, male and female flowers on different plants, large and showy, sepals in the male, two of which are small, two much larger, membranous, the margin white within side, slightly coloured, pink without, sepals in the female 4 or 5, when five, three are smaller, scarcely coloured, and less hairy on the outside than the male; an elegant large flowered species.

50. *B.* species. Not in flower. Petioles and nerves on the under-surface of the leaf pilose, leaves unequal-sided, variously lobed, lobes acuminate. Lassa.

51. *B.* species. Not in blossom, caulescent, leaves smooth, unequal-sided. Nangta.

52. *B.* species. Stem procumbent, leaves petioled, orbicular, sprinkled with rust-coloured pores, often purple underneath, outer sepals red, inner white, ligulate, stamens numerous; only one flower seen, found growing on the sandstone rocks at Namsang. Elevation 2153 feet.

ORDER.—*Cruciferaæ*.

53. *Sinapis dichotoma*, Roxb. Samsa.

54. *S.* a small species found on the Namsang. The mustard appears to be but sparingly cultivated among the Nagas.

ORDER.—*Capparidaceæ*.

55. *Gynandropsis pentaphylla*, DeC. *Hoorhooria*. Namsang.

ORDER.—*Violaceæ*.

56. *Viola Patrinii*. Flowers blue. Kangsing.

ORDER.—*Flacourtiaceæ*.

57. *Flacourtia cataphracta*, Linn. *Punial*. Kangsing.

58. *Chaulmoogra odorata*, Roxb. *Lemtem*. Namsang.

ORDER.—*Guttiferæ*.

59. *Mesua ferrea*, Linn. *Nahor*. An eminently ornamental flowering plant, yielding the most durable timber known in Assam. Namsang.

60. *Xanthochymus pictorius*, Roxb. *Tapar*. Namsang.

61. *Garcinia pedunculata*, Roxb. *Bor tekara*. An ornamental tree, fruit eaten by Assamese. Namsang.

62. *Garcinia*, *Kooji-tekara*. Leaves opposite, short petioled, elliptic, mucronate, shining on both sides, veins prominent. Mohom.

ORDER.—*Ternströmiaceæ*.

63. *Camellia*, species, not in flower. The *Heelkath* of this part of the district.

Misaphlap of Muttock. This plant is common on the hills, and also in the plains, but I saw no tea between the Dikho and Dhunsiri rivers. Dekah Hymung.

ORDER.—*Sapindaceæ*.

64. *Sapindus fruticosus*, Roxb. Dyung.

65. *S. emarginatus*, Roxb. Samsa.

66. *Schneideria serrata*, DeC. Larayen.

67. *Pierardia sapida*, Roxb. *Letikoo*. Banks of the Sohohai.

68. *Millingtonia pungens*, Wall. Lassa.

69. *M. species*. Leaves crowded about the end of the branches, acuminate to the base, mucronate at the apex. Boora Hymung.

ORDER.—*Æsculaceæ*.

70. *Æsculus species*. Not in flower. Sohohai.

ORDER.—*Sterculiaceæ*.

71. *Sterculia alata*, Roxb. Namsang.

72. *S. villosa*, Roxb. *Oodal*. Ditto

73. *Kleinhovia hospita*, Linn. Bhedam.

- 74. *Abroma agusta*, Linn. Larayen.
- 75. *Bombax Malabaricum*. DeC. *Hunool*. Larayen.
- 76. *Kydia calycina*, Roxb. Lakhoota.
- 77. *Pterospermum suberifolium*, Lam. Kangsing.
- 78. *P. lanceæofolium*, Roxb. Larayen.
- 79. *P. acerifolium*, Willd. Asringia.

80. *P. species?* Leaves alternate, short petioled, ovate, acuminate, obscurely 3-nerved, quite entire, smooth above, ferruginous underneath. Samsa.

- 81. *Buttneria aspera*, Coleb. Ditto.

ORDER.—*Malvaceæ*.

- 82. *Hibiscus macrophyllus*, Roxb. Larayen.
- 83. *H. rosa—sinensis*, Linn. Mohom.
- 84. *Urena labiata*, Linn. Ditto.
- 85. *Gossypium Indicum*, Linn. Ditto.

ORDER.—*Elæocarpaceæ*.

- 86. *Elæocarpus lucidus*, Roxb. Akook.
- 87. *E. oblongus*, Ejaert. Boora Hymung.
- 88. *E. aristatus*, Roxb.
- 89. *E. ganitrus*, Roxb. *Roodrakh*. Sonareegond.

ORDER.—*Dipteraceæ*.

- 90. *Dipterocarpus alatus*, Roxb. Mohom.
- 91. *D. turbinatus*, Gaert. Nangta.
- 92. *D. species*, *Hoollung*. Mohom.
- 93. *D. species?* *Makai*. Nangta.

These are trees of the first magnitude, growing to an immense height, yielding more or less oil or resin, and excellent timber.

ORDER.—*Tiliaceæ*.

- 94. *Trumfetta oblonga*, Wall. Nowgong.
- 95. *T. trilocularis*, Roxb. Larayen.
- 96. *Grewia columnaris*, Linn. Ditto.

ORDER.—*Lythraceæ*.

- 97. *Lagerstræmia regina*, Roxb. *Hazar*. Kamsing.

ORDER.—*Meleaceæ*.

- 98. *Amoora rohitrika*, W. and A. Boora Hymung.
- 99. *Guaria binectinefera*, Roxb. *Bondur Demoora*. Namsang.

- 100. *Walsura robusta*, Roxb. Mohom.
- 101. *Cedrela toona*, ditto, *Poma*. Lassa.

ORDER.—*Aurantiaceæ*.

- 102. *Bergera integerrima*, Buch. Deka Hymung.
- 103. *Triphasia trifoliata*, DeC. Larayen.
- 104. *Limonia* species? Kaboong.
- 105. *L.* species. Dyung Banks.
- 106. *Citrus decumana*, Linn. Lakoota.
- 107. *C. aurantium*, ditto, *Hoontora tenga*. Villages common.
- 108. *C. medica*, Linn, ditto. Ditto.
- 109. *C. acida*, Roxb. ditto. Ditto.

ORDER.—*Spondiaceæ*.

- 110. *Spondias mangifera*, Pers. *Amra*. Kangsing.

ORDER.—*Rhamnaceæ*.

- 111. *Zizyphus jujuba*, Lam. *Boghory*. Namsang.
- 112. *Z.* species? Leaves distinctly 3-nerved, nerves feathered, young parts ferruginous. Banks of the Dyung.
- 113. *Z.* species? Leaves obscurely 4 or 5-nerved, midrib and interior side of the nerves not feathered. Kangsing.
- 114. *Ceanothus asiaticus*, Linn. Namsang.

ORDER.—*Euphorbiaceæ*.

- 115. *Croton tiglium*, Linn. *Konibhi*. Rungagong.
- 116. *C. drupaceum*, Roxb. Kangsing.
- 117. *Ricinus communis*, Linn. Namsang.
- 118. *Andrachne trifoliata*, Roxb. *Uriam*. Ditto.
- 119. *Bradleia amosna*, Wall. Kangsing.
- 120. *Adelia nereifolia*, Roxb. Dyung.
- 121. *Embllica officinalis*, Gaert. *Amlooki*. On every hill.
- 122. *Euphorbia ligularia*, Roxb. Kangsing.
- 123. *Cluytia collina*, Linn. Sohohai.
- 124. *C. scandens*, Roxb. Ditto.
- 125. *Sapium sebiferum*, Roxb. Kangsing.

ORDER.—*Celastraceæ*.

- 126. *Salacia longifolia*, Wall. Kangsing.
- 127. *S.* species, leaves elliptic, remotely serrated. Sohohai.

128. *S.* species? smaller. Sonareegong.

129. *Celastrus* species? Sohohai.

130. *C.* species. Larayen.

ORDER.—*Xanthoxylaceæ*.

131. *Fagara Budringa*, Roxb. Kalaburia.

132. *Xanthoxylum* species. Leaflets dotted. Larayen.

ORDER.—*Balsaminaceæ*.

133. *Impatiens* species.—Herbaceous, perennial, stem procumbent, rooting, branches marked with the cicatrices of fallen leaves. Leaves crowded about the ends of the branches, alternate, petioled, acuminate to both ends, finely serrated, serratures bristle-pointed, sprinkled with a few hairs on the upper surface, glandular towards the base and on the petioles. Peduncles axillary, about two inches long with two subulate bracteoles about the middle, one or two flowers large, spreading, showy, bright rose-colored. Calyx spurred, lateral sepals similar, cordate, acuminate, green, the other two dissimilar, one white, carinate spurred, the other highly colored with a sharp green keel on the other side. Petals more or less united, inclining to one side. Found running over the rocks in the Deeria-panni.

134. *Impatiens natans*, Roxb. Jhanzy.

135. *I. latifolia*, Linn. Mohom.

ORDER.—*Oxalidaceæ*.

136. *Averrhoa carambola*, Linn. *Kordatenga*. Namsang.

137. *Oxalis*. A small species. Larayen.

ORDER — *Rosaceæ*.

138. *Rosæ chinensis*. Roxb. Namsang.

139. *Rubus rugosus*. Linn. Kangsing.

140. *R. Wallichiana*, W. and A. This I first saw at Boora Hy-mung, on a plant lately sown, the leaflets were retuse, but on several others at Akook in blossom, they perfectly agree with Wight's figure and description. An ornamental plant.

141. *R. hexagynus*, Roxb. Sohohai.

142. *R. racemosus*, ditto? Young plants densely clothed with glandular hairs; fruit cylindrical. Sohohai.

143. *R. rasæfolius*, Roxb.? Petioles and peduncles sprinkled with glandular hairs. I see none on the leaves. Santoong.

144. *R. species*. A large scandent shrub, armed with recurved prickles. Leaves alternate, long petioled, trifoliate, leaflets smooth, broadly ovate, sharply dentate. Sohohai.

145. *R. species*. Coloured, armed with numerous recurved prickles, and densely clothed with brown hairs. Leaves alternate, simple, distinctly 5-nerved, distinctly 5-lobed, lobes acuminate, dentate, more or less hispid on the nerves on both sides, armed with recurved prickles on the under side, and clothed with white down between the nerves. Lakhootee.

146. *Fragaria Indica*, Roxb. Boora Hymung.

147. *Amygdalus Persica*, Roxb. *Amboghory*. Dekka Hymung. Lakhootee.

ORDER.—*Leguminosæ*.

148. *Dunbaria species*? Not in blossom. Namsang.

149. *Rohinia species*. Kangsing.

150. *R. candida*, Roxb. Namsang.

151. *Bauhinia piperifolia*, Roxb. Not in flower, leaflets often separated to the base. Sohohai.

152. *B. corymbosa*, Roxb. Kahoong.

153. *B. acuminata*, Willd. Namsang.

154. *Dolichos scarabæoides*, Roxb. Dyung.

155. *D. lablab*, ditto. Kangsing.

156. *Crotalaria tetragona*, ditto. Ditto.

157. *C. species*. Dekka Hymung.

158. *Uvaria picta*, Desv. Nangta.

159. *Flemingia stricta*, Roxb. Lakhootee.

160. *F. strobilifera*, Br. Namsang.

161. *Dalbergia frondosa*, Roxb. Kangsing.

162. *D. robusta*, ditto. Sonareegong.

163. *D. dumosa*, ditto. Larayen.

164. *D. zeylanica*, ditto. Ditto.

165. *D. species* scandent. Duriagong.

- 166. *Entada pursætha*, DeC. Kangsing.
- 167. *Acacia amara*, Willd. Sonareegong.
- 168. *A. species*. Not in flower. Kangsing.
- 169. *A. stipulata*, DeC. Akook.
- 170. * * * * Nangta.
- 171. *Erythrina Indica*, Linn. Kangsing.
- 172. *E. stricta*, Roxb. Boora Hymung.
- 173. *Cassia glauca*, Lam. Larayen.
- 174. *Desmodium polycarpum*, DeC. Boora Hymung.
- 175. *Mimosa elata*, Roxb. Samsa.

ORDER—*Anacardiaceæ*.

- 176. *Mangifera Indica*, Linn. *Am.* Kangsing.
- 177. *Holigarna racemosa*, Roxb. Ditto.
- 178. *Rhus vernix*, Linn. *Ahom Etha*. Larayen.
- 179. *R. species*. Kangsing.
- 180. *R. species*. Larayen.
- 181. *Buchanania angustifolia*, Roxb. Namsang.

ORDER—*Cupuliferaæ*.

182. *Quercus species*. Trunk erect, from fifty to eighty feet high, and from two to four feet in diameter, bark rugged and rusty, leaves alternate, long-petioled, acuminate, serrate, serratures tapering to a fine point. Fruit sessile, cup clothed with scales. Asringia.

183. *Q. fenestrata*, Roxb. Ditto.

184. *Castanea species*. A middling-sized tree, leaves alternate, smooth, wood marked by 3 grooves. Namsang.

185. *C. species*. A large tree. Kangsing.

ORDER—*Betulaceæ*.

186. *Betula species?* A large tree from sixty to eighty feet high and three feet in diameter. Bark fragrant and peeling off. Leaves generally in alternate pairs with a bud between them. This is the principal tree at Larayen, found also at Lakoottee and Deka Hymung. Recognized by the Sipahes as the Puddum of Munnipoor.

ORDER.—*Urticaceæ*.

- 187. *Ficus lancœolata*, Roxb. Jhanzy Banks.
- 188. *F. Indica*, Linn. Kangsing.

189. *F. elastica*, Roxb. Ditto.
190. *F. benjamina*, ditto. Ditto.
191. *F. scabrella*, ditto. Namsang.
192. *F. scandens*, ditto. Ditto.
193. *F. excelsa*, Vahl. Sohohai.
194. *F. jewry*, Griff. Ditto.
195. *F. species*. Leaves alternate, short-petioled, lanceolar, minutely dotted. Larayen.
196. *F. species*. A large tree, unequal-sided, dotted, tapering to a fine point. Kangsing.
197. *F. hirsuta*, Roxb. Mohom.
198. *F. species*. Leaves 3-nerved, 3-lobed. Kangsing.
199. *F. species*. Leaves linear. Lassa.
200. *F. species*. Leaves ovate, serrate, acuminate. Namsang.
201. *F. religiosa*, Linn. Lakhootee.
202. *Urtica species*. Leaves ovate, 3-nerved, distinctly dotted. Namsang.
203. *U. suffruticosa*, Roxb. Asringia.
204. *U. species*. Leaves long, petioled, 3-nerved, dotted. Kangsing.
205. *U. pulcherrima*, B. Larayen.
206. *Urtica penduliflora*, Roxb. Larayen.
207. *U. heterophylla*, Roxb. *Phossat*. Lukhootee.
208. *U. species*. Leaves 3-nerved. Namsang.
209. *U. species*. Banks of the Jhanzy.
210. *U. species*. Leaves dotted, 3-nerved, rounded at the base. Namsang.
211. *Buchneria viminia*. Ditto.
212. *Artocarpus integrifolius*, Linn. Ditto.
213. *A. chaplasha*, Roxb.? *Sham*. A first rate timber tree, common in the plains. The fruit is eagerly eaten by the Assamese. Mohom.
214. *A. Lakoocha*, Roxb. *Deorsalli*. Asringia.
215. *Trophis aspera*, Retz. Nowgong.

ORDER.—*Ulmaceæ*.

216. *Ulmus virgata*, Roxb. Boora Hymung.
217. *Celtis orientalis*, Linn. Kangsing.

ORDER —*Myricaceæ*.

218. *Nageia putranjiva*, Roxb. Kangsing.

ORDER.—*Juglandaceæ*.

219. *Juglans pberococa*, Roxb. Larayen.

ORDER.—*Piperaceæ*.

220. *Piper betle*, Linn. *Pan.* Namsang.
 221. *P. longum*, Linn. Ditto.
 222. *P. rostratum*, Roxb. ? Nowgong.

ORDER.—*Balsamaceæ*.

223. *Liquidambar*, *Jootooli*. Larayen.

ORDER.—*Elæagnaceæ*.

224. *Elæagnus conforta*, Roxb. Kangsing.

ORDER.—*Aquilariaceæ*.

225. *Aquilaria agallocha*, Roxb. *Hansi*. The bark of this tree was formerly used for writing on, and often is so now by the Assamese; they also use it for bed mats. Good paper has been manufactured out of it. A thin slip of the bark, about 4 inches in breadth and 18 inches in length, is worn by the Namsangia Nagas, which hangs loosely, swinging behind them as a substitute for breeches. They wear nothing before. Nangta.

ORDER.—*Lauraceæ*.

226. *Laurus obtusifolius*, Roxb. Larayen.
 227. *L. species*, *Ratti houndu*. Leaves 12 inches long and 6 broad.
 Kangsing.

228. *Tetranthera*, *Soom*. Namsang.
 229. *T. species*. Mohom.
 230. *T. species*. Kangsing.
 231. *T. species*. Ditto.
 232. *T. species*, *Mazan Roon*. Kangsing.

ORDER.—*Amarantaceæ*.

233. *Amarantus spinosus*. Kangsing.
 234. *Celosia cristata*, Roxb. Jhanzy.
 235. *Deeringia celasoides*, Roxb. Larayen.

ORDER.—*Polygonaceæ*.

236. *Polygonum species*. Leaves dotted. Kangsing.
 237. *P. fragrans*, *Boka pothar*.

238. *P.* species. Stipules double, outer two lobes orbicular, leaves short-petioled, oblong, acuminate, dotted. Kangsing.

239. *P.* species. Stipules double, outer 3 green, leaves alternate, short-petioled, oblong, acuminate, cordate at the base, minutely dotted. Flowers axillary and terminal, white, disk glandular, stamens 8, style 3-cleft, stigmas capitate, seed 3-angled, a scandent plant. Kangsing.

240. *P.* species. Branches creeping, rooting, every part clothed with glandular hairs, leaves cordate, dotted, flowers terminal, rose-coloured, disk glandular, stamens 8-style, 3-cleft. Kangsing.

241. *Rumex* species. Nowgong.

ORDER.—*Menispermaceæ*.

242. *Menispermum polycarpum*, Roxb. Sohohai.

ORDER.—*Myrsinaceæ*.

243. *Myrsine* species. Kangsing.

244. *M. capitulata*, Roxb. Ditto.

245. *Ardisia floribunda*, Wall. Jhanzy.

246. *Baeobotrys nemoralis*, Forst. Kangsing.

247. *B.* species. Mickelai.

ORDER.—*Ebenaceæ*.

248. *Diospyros racemosa*, Roxb. Kangsing.

249. *D. stricta*, Roxb. Namsang.

250. *D. chenum*, Roxb. Samsa.

251. *D. sapota*, Roxb. Sohohai.

ORDER.—*Convolvulaceæ*.

252. *Porana racemosa*, Roxb. Kangsing.

253. *Argyria strigosa*. Mohom.

254. *A. splendens*, Swt. Tillo.

255. *A. argentia*. Tillo.

256. *Convolvulus trifolius*, Roxb. Simka.

257. *C. pentagonus*, Roxb. Sonaree.

ORDER.—*Lobeliaceæ*.

258. *Lobelia robusta*, Wall. Larayen.

ORDER.—*Cinchonaceæ*.

- 259. *Randia longespina*, DeC. Kangsing.
- 260. *R. racemosa*, Roxb. Boora Hymung.
- 261. *Morinda angustifolia*, Roxb. Kangsing.
- 262. *Hedyotes scandens*, Roxb. Larayen.
- 263. *Mussaenda scandens*. An extensive climbing plant. Larayen.
- 264. *M. species*. Ditto.
- 265. *Ixora species*. Not in flower. Namsang.
- 266. *Coffea Bengalensis*. Rungagong. This is common in the plains.
- 267. *Nauclea parviflora*, Roxb. Bhedaree.
- 268. *N. cadamba*, Roxb. *Rogoo*. Namsang.
- 269. *Rondeletia paniculata*, Roxb. Larayen.
- 270. *Uncaria sessilifructus*, Roxb. Mohom.
- 271. *Parderia foetida*, Linn. Lakhootee.

ORDER.—*Sambuceæ*.

- 272. *Sambucus ebulus*, Roxb. Namsang.

ORDER.—*Compositæ*.

- 273. *Elephantopus scaber*, Linn. Kolaburia.
- 274. *Spilanthis armilla*, Linn. Kaboong.
- 275. *Gnaphalium strictum*, Roxb. Namsing.
- 276. *G. orixensis*, Roxb. Mohom.
- 277. *Conyza lucta*, Wall. ? Ditto.
- 278. *C. balsamifera*, Roxb. Ditto.
- 279. *C. pennatifida*, Buch. Lakhootee.
- 280. *C. alata*, Roxb. Mohom.
- 281. *C. species*. Boora Hymung.
- 282. *C. species*. Larayen.
- 283. *C. species*. Asringia.
- 284. *C. species*. Mohom.
- 285. ? species. Larayen.
- 286. ? species. Samsa.
- 287. ? species. Mohom.
- 288. *Centaurea species*. Dyung B.
- 289. *Pectis species*. Larayen.
- 290. *Tagetis patula*, Roxb. Kangsing.
- 291. *Sonchus species*. Sohohai.

- 292. *S. orixensis*, Roxb. Boora Hymung.
- 293. *Artimelia grata*, Wall. Larayen.
- 294. *Bidens trifida*, Buch. Namsang.
- 295. *Conyza angustifolia*, Roxb. Mohom.
- 296. *Eupatorium* species. Lakhootee.
- 297. *E.* species. Samsa.
- 298. *E.* species. Boora Hymung.
- 299. *E.* species. Namsang.
- 300. *E.* species. Akooki.
- 301. *Siegisbeckia orientalis*, Roxb. Nowgong.
- 302. *Conyza* species. Namsang. All the lands which had been under cultivation during the last season were crowded with *Compositæ*, but I did not succeed in getting specimens of all that I saw, and have not sufficient data by me to determine the above in a satisfactory manner.

ORDER.—*Plantaginaceæ*.

- 303. *Plantago* species. Kangsing.

ORDER.—*Cordiaceæ*.

- 304. *Cordia* species. Leaves 3-cordate. Kangsing.

ORDER.—*Labiataæ*.

- 305. *Ajuga repens*, Roxb.? A showy plant, with beautiful blue flowers. Akooks.
- 306. *Mentha* species. Leaves cordate, serrate. Nowgong.
- 307. *M. paniculata*, Roxb. Mohom.
- 308. *M.* species. Leaves elliptic. Ditto.
- 309. *Salvia* species. Every part clothed with odoriferous glands. Nangta.
- 310. *Ocymum sanctum*, Linn. Lakhootee.

ORDER.—*Verbenaceæ*.

- 311. *Verbena officinalis*, Linn. Mickelai.
- 312. *Premna scandens*, Roxb. Larayen.
- 313. *P. grandiflora*, Wall.? Mickelai.
- 314. *Clerodendron nutans*, Wall. Samsa.
- 315. *C.* species. Kangsing.
- 316. *C. imfortunatum*, Linn. Sohohai.

317. *C. viscosum*? Calyx glandular. Kaboong.
 318. *C. serratum*, Don. Kangsing.
 319. *Callicarpa* species. Arboreous from 30 to 40 feet high, bark rough, all the young parts tomentose, leaves alternate, flowers terminal. Larayen.
 320. *C. lanceolaria*, Roxb. Samsa.
 321. *C. Reevesia*? Mickelai.

ORDER.—*Bignoniaceæ*.

322. *Bignonia cauliflora*, Wall.? Larayen.
 323. *B. suaveolens*, Roxb. Namsang.
 324. *B. chelonoides*, Roxb. Ditto.
 325. *B. Indica*, Linn. Ditto.

ORDER.—*Crytandaceæ*.

326. *Incarvillia parasitica*, Roxb. Sohobai.
 327. *I. oblongifolia*, Roxb. Mohom.

ORDER.—*Acanthaceæ*.

328. *Ruellia dependens*, Roxb. Larayen.
 329. *R. latebrosa*, Roxb. Booru Hymung.
 330. *Justicia speciosa*, Roxb. Nangta.
 331. *J. thyrsiflora*, Roxb. Kaboong.
 332. *J. parviflora*, Wall.? Namsang.
 333. *J. Adhatoda*, Roxb. Mickelai.
 334. *J. species*. In habit like *Adhatoda*, with orange coloured flowers. Mickelai.
 335. *J. Gendurussa*, Linn. Namsang.
 336. *Eranthemum pulchellum*, Roxb. Ditto.
 337. *Thunbergia grandiflora*, Roxb. Ditto.
 338. *T. Wall.* Kaboong.
 339. *Goldfussia* species. Leaves unequally purple, underneath flowers white, found in the ravines between Namsang and Nangta.
 340. *G. species*. Not coloured, leaves unequally paired, flowers large, of a lilac color. Nangta.
 341. *G. species*. Flowers yellow. Namsang. I have not the character of this genus to refer to, it is not in any book which I have access to

at present, and the same remark applies to all the species given under *Justicia*, as the greater part of them have been placed with other genera by modern Botanists. I have no monograph of any single family of plants by me here, so cannot avail myself of any of the late improvements.

ORDER.—*Scrophulariaceae*.

- 342. *Terrovia*, Roxb. Kangsing.
- 343. *Buddleia* *Neemda*, Buch. Nangta.

ORDER.—*Solanaceae*.

- 344. *Solanum* *Jacquinii*, Willd. Nowgong.
- 345. *S. Indicum*, Linn. Ditto.
- 346. *S. pubescens*, Willd. Lakhootee.
- 347. *S. species*. Unarmed, leaves obovate. Mohom.
- 348. *Nicotiana* *tabaccum*, Linn. Ditto.
- 349. *Capsicum* *frutescens*, Roxb. Kangsing.

ORDER.—*Gentianaceæ*.

- 350. *Exacum* *bicolor*, Roxb. Sohohai.
- 351. *Pladera* *virgata*, Roxb.? Probably a new species, as Roxburgh says his plant is erect; this is trailing, branches acutely 4-angled, leaves opposite, short petioled, 3-nerved, smooth, calyx distinctly 4-partite, 2 segments large, striped with pink, 2 smaller white, bearing the longer stamen, which is twice the length of the other three, throat of the corolla yellow. This is one of the most interesting plants I met with, as it bears such a profusion of flowers, and accompanied us at every step from the Dikho to the Dyung. I saw it on the summit of every hill on both sides of the road, on every slope, and at the bottom of every ravine.

ORDER.—*Apocynaceae*.

- 352. *Beaumontia* *grandiflora*, Wall. This very elegant and powerful climber I have not hitherto met with in the plains, and I saw but one plant in our journey over the hills, and that was at an elevation of 2,153 feet. Namsang.
- 353. *Echites* *macrophylla*, Roxb. Sohohai.

- 354. *E. acuminata*, Roxb. Boora Hymung.
- 355. *E. species*. Not in flower. Ditto.
- 356. *Nerium grandiflorum*, Roxb. Ditto.
- 357. *Ichnocarpus frutescens*, H. R. Mohom.

ORDER.—*Oleaceæ*.

- 358. *Phillyrea robusta*, Roxb.? Larayen.
- 359. *P. grandiflora*, Wall. Samtoong.
- 360. *Chondrospermum smilacifolium*, Wall. Sohohai.
- 361. *Chionanthus macrophyllus*, Wall. Kangsing.
- 362. *C. zeylanica*, Linn. Kangsing.
- 363. *C. dichotoma*, Roxb. Ditto.

ORDER.—*Jasminaceæ*.

- 364. *Jasminum aristatum*. Boora Hymung.

ORDER.—*Equisetaceæ*.

- 365. *Equisetum debilis*, Roxb. Jhanzy.

ENDOGENÆ.

ORDER.—*Scitamineæ*.

- 366. *Alinia species*. Namsang.
- 367. *A. allughas*, Roxb. Ditto foot.
- 368. *Hedychium angustifolium*, Roxb. Ditto.
- 369. *Zingiber species*. Mohom.
- 370. *Z. officinalis*, Roxb.? Cultivated.
- 371. *Costus speciosus*, Roxb.? Namsang.
- 372. *Phrynium dichotomum*, Roxb. Ditto.
- 373. *Canna Indica*, Linn. Ditto.
- 374. *Maranta species*, *Copat*. Mickelai.

ORDER.—*Musaceæ*.

- 375. *Musa sapientum*, Linn. Namsang.
- 376. *M. coccinea* *Andi*. Nangta.

ORDER.—*Iridaceæ*.

- 377. *Iris species*. Not in flower. Namsang.
- 378. *Marica species*. Ditto. Akook.

ORDER.—*Orchidaceæ*.

379. ? species. Namsang.
 380. ? „ Terrestrial. Akook.
 381. ? „ Epiphite. Ditto.
 382. ? „ Namsang.
 383. ? „ Terrestrial. Sohohai.
 384. *Cypripedium venustum*. Namsang.
 385. ? species, Epiphite.
 386. ? Ditto, ditto. Nangta.
 387. ? Ditto, ditto. Namsang.
 388. ? Ditto, ditto. Kangsing.
 389. *Dendrobium Pieradii*. Sohohai.
 390. *D. densiflorum*, Wall. ? Mohom.
 391. *Coellogzne** species. Kangsing.

ORDER.—*Palmaceæ*.

392. *Calamus, Ryding*. Kangsing.
 393. *C. rotang*, Roxb. Nowgong.
 394. *Areca gracilis*, Roxb. Mohom.
 395. *Wallichia caryotoides*, Roxb. Nangta.
 396. *Caryota urens*, Roxb. Nowgong.
 397. *Livistonia assamica*, Griff. Namsang.

ORDER.—*Commelinaceæ*.

398. *Anceilema*† species. Kangsing.

ORDER.—*Roxburghiaceæ*.

399. *Roxburghia viridiflora*. Samsam.

ORDER.—*Dioscoreaceæ*.

400. *Dioscorea* species. Sohohai.
 401. *D.* species. Kolaburia.
 402. *D. alata*, Roxb. Boora Hymung.

ORDER.—*Pandanaceæ*.

403. *Pandanus odoratissimus*. Kangsing.
 404. *P. furcatus*, Roxb. Ditto.
 405. *P.* species, small. Sohohai.

* So in MSS.

† So in MSS.

ORDER.—*Araceæ*.

406. *Pothos officinalis*, Roxb. Nangta.
 407. *P. scandens*, Roxb. Sohohai.
 408. *P. caudata*, Roxb. Kangsing.
 409. *Pothos laria*, Roxb. Sohohai.
 410. *P. species*. Leaves large oblong, with parallel. Kangsing.
 411. *Arum species*. Small leaves, smooth, with dark ovate spots, found growing on the rocks, Sohohai. Besides these, a large species of *Arum*, *Naya Kushoo*, is cultivated to a great extent, and brought down into the plains for sale. The root is globular. I have not seen the plant.

ORDER.—*Gramineæ*.

412. *Melia latifolia*, Roxb. *Koosepat*. This is the principal plant to be met with on all the slopes that have not been under cultivation for three years. At great elevations it is less succulent than in the plains, and acquires a firmer texture, that is, if the plants are identical. There may be two or three different species.

413. *Coix lachryma*, Linn. Nangta.
 414. ? species. *Langmai*. Kangsing.
 415. *Saccharum officinarum*, Linn. Ditto.
 416. *S. Sara*, Roxb. Bora Hymung.
 417. *S. species*. *Puddumpuli*. Kangsing.
 418. *Oryza sativa*, Linn. Cultivated.

Bambuseæ. There is a vast variety of the Bamboo genus spread all over the hills, especially in the ravines near the water-courses, and they appear to have been not unfrequently planted in the neighbourhood of villages, in order to their yielding a ready supply. I am unable to give a correct specific name to those which I met with, but here add the native name of seven species or varieties recognized by the Assamese.

419. *Jattie Bank*.—A strong useful bamboo, preferred for building purposes.

420. *Bijulee B*.—Very large and strong.

421. *Bazal B*.—A small straight rind used for mats, &c.

422. *Boolooka B*.—A large hollow rinds used for carrying water by the Nagas.

423. *Kankoo B.*—Large and firm.

424. *Watooi B.*—Small.

425. *Bhee B.*—Reported to be poisonous.

ACROGENS.

Filices.

426 to 451. Of ferns I collected 26 species, among which is the gigantic tree fern, but I have not sufficient data by me to determine the genera and species.

Musci.

452 to 470. Of fungus only 6 species.

Miscellanæ.

477? Arboreous. All the young parts densely covered with rusty tomentæ, leaves alternate, oblong, lanceolate, sharply serrate, smooth above, clothed with ferruginous down, underneath, veins conspicuous, parallel, anastomizing at or just within the margin. Larayen.

478. *Rottlera tinctoria*, Roxb. Nowgong.

479? Compositæ. A very large plant for this family, from 10 to 200 feet high, the trunk near the ground from 3 to 6 inches in diameter, wood very hard and heavy. Leaves alternate, sessile or nearly so, ovately lanceolate, acuminate most towards the base, remotely dentate, smooth on the upper surface, a little downy underneath, principal veins strong, parallel anastomizing near the margin, 18 inches long by 6 broad, flowers very numerous in large terminal spreading panicles, found on every hill between the Dikho and Dyung rivers.

COMPOSITÆ.

480. *Tunglutty*. Shrubby, many erect branches often springing from the same, perennial root, every part woolly and fragrant. Leaves alternate, petioled, acuminate to both ends, serrated, serratures ending in a rigid point, downy on both sides, with 4 nearly opposite subulate appendages to the petiole, very common in the plains, covering large tracts of land. I frequently met with it on the hills, but not in flower. Kangsing.

481. ? Compositæ. A small herbaceous, erect, branching in every part, densely covered with odoriferous glands. Branches winged, wings

broadly fringed. Leaves alternate, serrate, acuminate to both ends, flowers axillary, and terminal. Larayen.

482. ? An ornamental tree with shining leaves ; in appearance it resembles *Carallia lucida*, Roxb., but I see no serratures on the leaves. Kansing.

483. *Gordonia integrifolia*, Roxb. *Nagabi*. Kansing.

484. ? A very ornamental climbing plant, with opposite acuminate smooth leaves, and numerous white flowers. Namsang.

485. ? A most powerful climber, running over the tops of the highest trees. Leaves crowded near the ends of the branches, petioled, smooth, shining on both sides, cuneate, mucronate, 12 inches long by 5 broad, very distinctly though minutely dotted, peduncles terminal, all the parts of the flower more or less villous. Calyx 6-partite, corolla none, stamens 9, style 1, disk glandular. Larayen.

486. ? *Rom. Acanthaceae*. A small shrub cultivated by the Nagas for a good blue dye which it produces. The greater part of the clothing which we saw in use by men, women and children, had been dyed by this plant, and the colour appeared to stand very well. Leaves opposite, short petioled, or sessile, often unequally paired, elliptic, acuminate, remotely serrate, veins prominent, parallel. Flowers axillary and terminal, lilac coloured, showy, calyx closely embraced by 2 small ligulate bractes, 5-partite fully to the base. Corolla unequally 5-partite. Stamens 4 didynamous, with the rudiment of a sterile filament ; style one, stigma incurved, fringed, germ sprinkled with short, glandular hairs, seeds hooked. Larayen.

387. ? Arboreous, bark rust-coloured. Leaves alternate, petioled, oblong, serrated, nearly smooth above, with a few scales on the midrib and veins, densely clothed with ferruginous down underneath, veins parallel and sprinkled with woolly scales. Peduncles axillary, many flowered, flowers rose-coloured. Sepals 5, petals 5, stamens numerous, closely surrounding the germ ; germ 5-celled, style 5-cleft. The style is sometimes 6-cleft, and the germ 6-celled. Kangsing

488. ? An ornamental plant, probably a jasmine. Leaves opposite, very thin, rounded at the base, tapering to a fine point. Kangsing.

489. *Olax imbricata*, Roxb. Kangsing.

490. ? An ornamental shrub, every part covered with soft pubescence, leaves alternate, short petioled, oblong, finely serrated. Sohohai.

491. ? *Nagatinga*. Arboreous. Leaves alternate, petioled, acuminate, serrate, smooth on both sides. Boora Hymung.

492. ? Arboreous, young parts softly tomentose. Leaves opposite, long petioled, unequally paired, cordate, 3-nerved, a little rough above, tomentose underneath. Larayen.

493. ? An elegant little annual plant about one foot high, with white flowers, spotted within side like a foxglove. Herbaceous, erect, leaves opposite, petioled, from elliptic to lanceolate, smooth above, pubescent underneath on the veins and petiole; peduncles terminal, many flowered, calyx 5-partite, segments acute, corolla tubular, 5-partite, fertile stamens 2, anthers double, sterile filaments 2, shorter, germ superior, style one, stigma exserted, 2-lobed. Namsang.

494. ? A completely glaucous climbing plant without stipules. Leaves alternate petioled, oblong, quite entire, distinctly dotted, veins anastomizing within the margin. Sohohai.

495. ? A pretty little herbaceous annual with yellow flowers, every part villous, the hairs in the young plants are often tipped with glands. Leaves opposite petioled, oblong or lanceolate, distinctly serrated. Flowers in axillary and terminal racemes. Calyx 5-parted, segments nearly equal, corolla bilabiate, upper lip much smaller, entire or slightly emarginate, lower lip somewhat 3-lobed, middle lobe projecting and emarginate, throat very hairy and spotted. Stamens 4-didynamous, anthers double, distinct, style one, stigma obscurely 2-lobed, capsule 2-celled, many-seeded. Sonareegong.

496. ? An extensive climber not in flower, every part smooth, leaves alternate, long petioled, undulate, cordate, 3-nerved, unequal-sided. Larayen.

497. ? An ornamental tree, all the young parts softly tomentose. Leaves alternate, numerous, small, oblong acuminate. Cascarea species?

498. ? An ornamental tree, branches, petioles, and veins of the leaves clothed with subulate scales, leaves alternate, cuneate serrate, serratures subulate, veins parallel. Namsang.

499. ? A large and elegant tree, not in flower. Leaves alternate, short petioled, oblong acuminate, slightly waved, green and shining above, glaucous underneath, 18 inches long by 5 broad, veins prominent parallel, anastomizing just within the margin. Bhedavee.

500. ? A small, but very ornamental shrub, with red and white flowers; every part covered with soft, hairy tomenta. Leaves opposite petioled, lanceolate, serrate, white, with down underneath. Flowers in crowded terminal racemes, or rather spikes, for the pedicles are scarcely perceptible. Bractes scattered, coriaceous, about 3-flowered, calyx tubular, 5-toothed, densely clothed with soft white down, corolla 5-partite longer than the calyx. Stamens 4-didynamous, exserted, 4 times as long as the calyx, Pestil bifid as long as the stamens, germ 4-lobed, ripe seed not seen. *Clerodendron* species? Mohom.

In conclusion, I have to observe, that I have generally preferred giving Roxburgh's names, although I am aware that many of them have been changed since his time. All the native names given in italics are Assamese.

(Signed) J. W. MASTERS.

Sibsagore, 29th March, 1844.

Journal of Captain Herbert's Tour from Almorah in a N. W., W., and S. W. direction, through parts of the Province of Kemaon and British Gurhwal, chiefly in the centre of the Hills, vide No. 66, Indian Atlas. (Edited by J. H. BATTEN, Esq., C. S.)

11th November, 1827.—Marched in the evening to Hawulbagh.

12th Nov.—Halted for Captain Manson to join.

13th Nov.—Halted for coolies, thinking these would prove a difficulty, deemed it advisable to detach him.

14th Nov.—Marched to Dharim Khola about six miles. Road good, almost level, mica slate the whole way, no good examples of strata. Temperature of the river 58, air 68, mean thermometer 48; in the evening making arrangements for the coolies. Dharim Khola-ghur is small but rather picturesque, with a pretty good share of level ground; it contains one other village.*

* The line of march from Hawulbagh was up the Kosilla river. Dharim Khola is a glen, which joins that of the Kosilla from the West.—J. H. B.

15th Nov.—Marched to Kotlee three hours, road distance about 8 miles. On ascending from Dharim Khola, granite of the crumbly type passing into gneiss. Road ascends to corner about 400 or 500 feet; descends to Bumunee-God under Majhera. Gneiss inclining to granite the whole way. No fixing the strata. Road up Bumunee-God to Kehera-ka-rao. The gneiss to Kotlee. Road level almost, and country beautiful; a valley falls in from the right, East*.

16th Nov.—Muhurgaon; the distance was shorter to-day owing to the sepoy's mistake, about two hours, five or six miles. The road leads up the Cosillah at first along the side of the hill, then descending to cross the river continues along a fine level piece† of some miles in extent, and half a mile wide, the whole of it apparently carefully cultivated. Ground preparing, for wheat has been sown in the cold places. Three villages on a steep to right: Neera, Lowrap and Soomket, three miles from camp. Tauna Suzowlee to left on the rise of the hill, four miles from camp. Opposite Phuleea, a Joodish village; about four and half miles, a valley falls in from right. Turn up and encamp at Muhurgaon. Scenery picturesque; road generally level.

The rock at starting was gneiss, of an anomalous character, having apparently taken in clay slate as one of the ingredients. This rock then extends from Dharim Khola, to the east and west; I suspect it has considerable development, and will open out a new feature of enquiry when properly pursued. Nos. 5 and 6, gneiss. No. 7, a cherty rock, a sub-granular quartz rock. It succeeds the gneiss. It is very abundant in this quarter, and forms imbedded nodules in the gneiss. It is the rock at Mala, occurring there intermixed with clay slate.

4h. 30m. 25.446; 66, 64, 65, 70.33.

17th Nov.—Register thermometer at 33 (sp.) 34 (mercury) covered with dew. Hoar frost in all the hollows; road easy of ascent at first along

* This comes down from the Gunnanath ridge which divides the Kosilla, from the Suttralee valley and the Chana Biloree valley on the Bagesur road. At Gunnanath, Hustee Dull, the Goorkha chief, fell in battle with the English troops, 1815.—J. H. B.

† This is the Somesur valley on the Kosilla. There is a beautiful grove of deodar pines in the middle of the valley, shading a pretty temple. The villages in this vicinity are very fine, with some large white houses scattered here and there, nearly all belonging to families of Joshee Brahmins, the dominant tribe in Kumaon.

side of hill, latterly more steep to Geera Cheena. Bar. at 10h. 24.48, Th. 60.54. Then a steep and bad descent to camp. Splendid view of peaks (snowy) from Pass. The following villages: Dhoom right bank; Bhurur ditto; Chour left; Nakot right; Ujhura, Buseráree, Noukora, all together right bank. The valley begins to narrow here, and there are no villages beyond. Our tent occupies the site of an *augur*, or village of iron-founders, which was formerly nearly at the head of the valley, and received its ores from a mine above the Khuree* copper ore. At starting, No. 8, a reddish quartzose slate verging on clay slate; No. 9, true clay slate, a thin layer; No. 10, the quartz rock under; No. 11 limestone at Nakote, silicious, I believe. These are the same rocks precisely as are found on the Suttralce road to Bageswur, and there also they succeed gneiss, which is found extending nearly from Ják Bhetoolee to Thakoollee; also at Ramesur, on the Surjoo, the same succession occurs, and in the Ramgunga. No good indications of strata; the covering of debris is thick on these hills, which are of the rounded form; even the outline fails to detect the dip. The scenery was picturesque—4 P. M. 25.148, 61.5, 56, 48.5; 64 max., 41 min.; sunset at a quarter to 3.†

18th Nov.—No. 1, 1753; No. 2, 1754; No. 3, 1755; No. 4?

16th Nov.—No. 5, straight laminar gneiss containing something between talc and mica, might be called argillaceous gneiss perhaps, as the mica is like clay slate. No. 6, a better defined gneiss than the preceding, straight slaty, contains more felspar and perhaps chlorite. No. 7, very fine granular brownish quartz rock, Muhurgaon.

17th Nov.—No. 8, quartz rock passing into clay slate, red slaty, composition granular. Beyond Muhurgaon No. 9 olive-colored fine earthy clay slate, sub-schistose, Bhynsur. No. 10 quartz rock, reddish olive, a layer or veins in preceding ditto. No. 11, blue limestone with white veins, Nakote. No. 12, white compact dolomite? or silicious limestone, Nakote.

18th Nov.—No. 13, 1765, large crystalline granular dolomite, Doba.

* The Khuree copper mine to East of Capt. Herbert's route is passed on the road from Almora to Bagesur.—The ores are very good, but the mine is not productive, owing to the difficulty of working the soapstone rock, which is always falling in.—J. H. B.

† No miracle, but owing to the Western hills.—J. H. B.

No. 14, black talc slate. No. 15, 1767, granitic talcose quartz rock above confluence with Gaomuttee river.*

Marched to Dangun, village on confluence of a stream with Gaomuttee river; rocks very little visible, at first small patches of dolomite crystalline granular, intermixed with black potstone and black potstone slate. Then a large tract of compact quartz rock, and latterly of granitic structure, similar to what I have obtained in the Ramgunga and at Punnae.† This is a curious rock, and well deserves a name.

The road was an easy descent the whole way. Very little cultivation, except at Doba and about half way below Jowkande. Here there is a fine wide valley well cultivated. The Gaomuttee is a large stream, even in this month it is about breast deep. We crossed it by a *sunga*. Umsaree Kot-ka Gudhera is the name of the glen we came down from Doba. The village is below Jowkande. Sunset at 4 P.M. Ther. 73, min. 57. Dry 9 cylind. 13. wet 27, 4 P. M. 26.878, 77.5, 72.5, 58.76, max. 34 dew.

19th Nov.—Umtola and Kholee, two pretty white villages on opposite sides of a glen that comes down parallel to that of Doba. Mohot $1\frac{1}{2}$ hour on left bank, fine deep place in the river like a small lake, about 2 or 300 yards long. Rock, which has been something of a gneiss, changes here to a hornblende or chlorite schist, a compound rock. Path generally good, with easy ascent along left bank. The rock is distinctly stratified in many places, generally the strata are vertical. Here the dip to North at an angle of 56° . The rock changes to the type No. 15, and continues all the way distinctly stratified, dipping near 20° N. W., with a high angle (50°). Road passes into a feeder of the Gaomuttee, and then back again over the side range without ascent to the parent valley. A Jood village on right bank. Encamp in bed of river about $3\frac{1}{4}$ miles beyond. Time 3 hours = 9 miles. One or two difficult rocky places.

The valley is as yet narrow, except here and there for about $\frac{1}{2}$ a mile or so, and then even of no great width. In some places the

* Great care should be taken in the Museum to compare Capt. Herbert's descriptions with his specimens. The mineral characteristics will at once shew to what series his numbers on the specimens refer. No. 11 is also 1763, and "Blue limestone with white veins" will at once shew its difference from any other. No. 11 is another series.—J. H. B.

† The fine valley of Punnae, on the Aluknunda between the Dhunpoor and the Pokree copper mine mountains.--J. H. B.

rocky banks almost meet. Features of this kind inevitably excite the idea of the gradual development of a river's course, and the previous formation of many lakes. 4 p. m. Bar. 26.476, 61; 59; 51.5, max. 72. River 56.3. Tent 61.54. Outside 59.51.5.

20th Nov.—Marched to Poorena, about 6 miles. At 35 m. Kunsaree, a deep pool in the river bed. Rock dipping S. E. A little further, valley opens and presents a fine sloping surface of some extent. The whole covered with jungle grass, with the exception of a few fields here and there; few villages visible. Cross a small stream near camp; gneiss dipping to N. direction, N. 80 E. 4 p. m. Bar. 26.286, 72, 67.5, 54. Byznath about $1\frac{1}{2}$ mile on the Gaomuttee. The confluence of the Guroor close to this.

21st Nov.—Nowgaon. Road not so good to-day; to Nowgaon about 6 or 7 miles. First part level, leaving Goamuttee valley and following that of the Guroor, picturesque valley, the former looking towards Runchoola; strange that such a fine valley should be so ill cultivated, or rather uncultivated. Here and there a field in the middle of the jungle grass, indicates perhaps the commencement of a different state of things.*

Gurser Lillu, 2 villages. Puchunna to right 50 miles. Geonae to left 90. Babburtola right a little back. Rock a chloritic schist, dips N. E. 20°.

Ghersun-ka-khola, }
Kot-tulwaree. } .. 100 min" to right.

4 p. m. Bar. 25.686, 66, 59, 50.

No. 16, 1768, a schist of an anomalous character, perhaps a gneiss. Yellowish grey. Close to camp being like the rock near Ramgurbh.†

No. 17. Talcose gneiss? the Punnae and Ramgunga rock.

No. 18. Chlorite or hornblende schist.

No. 19. Talcose schist. No. 17, but with straight laminar structure.

20th Nov.—No. 20. Gneiss bluish-grey, approaching to mica slate.

* This valley, now called the Bijnath valley, is the largest in Kumaon, and although 3,500 feet above the sea, no cultivators can remain in it on account of its insalubrious climate. It was once thickly peopled, and at *Kuthoor* and on the Runchoola ridge which stretches into the valley, was the seat of the ancient hill dynasty, called the *Kuthoor Rajahs*, now quite extinct. Ruins of temples, cutcherries, chaboutras, &c. some of them beautifully carved, abound hereabouts.—J. H. B.

† Ramgurbh, between Almora and Bhamouree.

21st Nov.—No. 21. Olive green chlorite schist.

No. 22. Dark green ditto.

No. 23.* A vein of gneiss in preceding, a beautiful rock.

22d Nov.—To camp in jungle, owing to the stupidity of the sepoy who went on. We had a hard day's work of it, the ascent to the Pass† occupying 5 hours, the first few miles were easy with good road, but the latter was for the rest of the way very bad, chiefly in the bed of a torrent, Gurroor-Gunga, which we crossed and recrossed about one dozen times. Latterly, leaving its bed, the road ascends one of the spurs thrown out by the high ridge, when it improves a little. There is, or was, a pool on the top of the ridge where we expected to find the camp, but had to descend about a mile on the western side, where I found breakfast prepared, but no ground or place fit for a tent. After breakfast, went on 2 hours farther, the descent most steep, and in many places even dangerous. At last, we came to a tolerably level spot where was water, and where I pitched for the night. An extraordinary feature in this descent was the deficiency of water even where the ground was a little level. Barometer on the Pass, 22.82; 54, 49, 40, at 11 A. M.

The rocks, as the preceding days, anomalous, sometimes verging on gneiss, sometimes on chlorite slate, but most generally quartz rocks, all the fragments too, of which there are an immense number, both on the ascent and descent, belong to the last named species. Very few examples of strata, or indeed of the rock in situ at all. One on the ascent was observed N. 60 E., (direction N. 30 W.), angle of inclination 75. A wild bee's nest was observed, which had been robbed by a bear or other wild animal. The bee is of a different species from the cultivated, much smaller, and marked with yellow rings. It is said to be much more vicious; the domestic bee seldom or ever stinging, the other severely. The cells of the honeycomb were hexangular. This is the third species of bee I have observed in these hills.‡

* This should be 1775.

† This Pass is over the Bhutkot and Pinnath range of mountains, visible N. W. from Almora, very high, from 9,200 feet to 7,500 feet above the sea.—J. H. B.

‡ It is somewhat strange that Dr. McClelland in his "Enquiries into the Geology of Kumaon," blames the people for using only wild honey instead of domesticating the bee. Nearly every house in the province has *bee-hives*, and the honey is excellent in some places, and a profitable article of trade.—J. H. B.

23rd Nov.—To Turrak-ka-tal. Our yesterday's march having kept the people on their legs all day, and allowed but little time for their meals; made a short one to-day to Turag-ka-tal, an open spot in the bed of the feeder of the Ramgunga, which though now dry, they say, in the rains becomes a lake. Distance about 5 miles, road at first more steep, afterwards less so; a descent the whole way, and mostly good, very little rock, the fragments always the talcose granular quartz rock. Found the Englefield barometer out of order to-day, and obliged to open the cistern. A large bubble of air had got $\frac{2}{3}$ up the tube, readjusted, but without boiling. It is evident that the Englefield barometer unless checked by another, is of no use.

3-45, P. M., 26.100; 64, 61, 49.5 sunset. Set watch at 12 by Theodolite.

22nd Nov.—No. 24. A thin slaty gneiss, bluish grey, dirty.

No. 25. An almost compact fine grained quartz rock, contains most probably felspar. This is the rock of which the dip was observed.

No. 26. Large grained talcose quartz rock, with very little appearance of stratification. The Ramgunga and Punnaë rock.

23d Nov.	} These specimens anticipate the Journal by four days.—J. H. B.	No. 27. A green (chloritic) gneiss, sublaminar.
24th „		„ 28. Limestone, Turag-ka-tal.
25th „		„ 29. Gneiss, straight laminar.
		„ 30. Quartz rock.
26th „		„ 31. A tender mica slate passing into gneiss. It certainly contains felspar, ascent from Sohngaon.
		„ 32. A true gneiss, silvery mica, top of ridge.
		„ 33. Ditto.
27th „		„ 34. A mica slate or gneiss, brown. Bed of Binee Gunga, or Bino below Ooperara.

24th Nov.—To Bural near Doluree, along the level plain, which in the rains becomes a lake, and therefore called Turag-ka-tal. It is almost shut in to the West, which is the direction of the glen, by a low ridge of limestone which runs across the valley, leaving but a narrow opening for the discharge of several streams, which even at this season take their rise here. This ground though remarkably even, is not I think quite level, having a fall to West, as proved by the streams which have a considerable current. The whole length is between two and three miles, and the breadth at the widest about a $\frac{1}{4}$

to $\frac{1}{3}$. The soil appears excellent, and is partially brought into cultivation. In the rainy season the depth is said to be such, that some tall trees, which are situate about the middle, are completely submerged. The extreme steepness of the mountains which surround it, must carry down their supplies quicker than they can run off; and in this way has a deep and rugged glen been filled up with silt and detritus, and converted into a fine level piece of ground; doubtless the surface will continue to rise till the waters find a wider outlet over the top of the limestone ridge already noticed, which is not many feet above the present surface.

The descent from this ridge is considerable, the difference of level between its top and the bottom of the glen being four or five times what it is on the side of the lake, a proof that the latter has been raised considerably. After descending, there is a good deal of level ground, and the path is pretty good, with the exception of occasional boggy places which are troublesome. The road after leading down the glen, enters the bed of the Ramgunga* with such a straight continuity of direction, that though I was on the look-out for the meeting of the two vallies, I did not observe it, and was surprised to find myself encamped on the bank of the latter river. A very extensive piece of level ground occurs here, and it is well cultivated; a fine valley appears E. or S. E., very wide and very level, no rocks were visible, but limestone more or less pure. A good deal of it was seen in the bounding ridges to right, as indicated by the black and yellow precipices.

25th Nov.—Sohngaon; road excellent to-day, level the whole way, the march a short one, being Sunday, about 5 miles. Down the Ramgunga, the bed of which is here a noble plain of many miles in length, and upwards of $\frac{1}{2}$ a mile in breadth in some places. Left the village of Nagadh to right in a little glen of 1 or 2 miles. Crossed the river and ascended a larger glen, which though of some extent, is said to lead back upon the Ramgunga, or rather upon the

* Care should be taken not to confound this Ramgunga which, rising in the central hills, flows to Moradabad and Bareilly, with the Ramgunga which rises in the snowy range and joins the Surjoo river at Ramesur, a few miles from the junction of the latter with the Kalee river.—J. H. B.

Kutsaree* stream. No rock visible, but one which seems to be a gneiss of very flat laminar structure. In this glen appear some strata dipping to W. N. W. at a low angle (30°) quartz rock. We have in this valley a fine section of the bank, exhibiting distinctly the manner in which these level pieces are formed. Three strata appear distinctly marked, perfectly parallel to the present surface. The lowest consists chiefly of very coarse gravel. The second is a fine silt or mud, with scarcely any gravel. The third, or uppermost, is like the first, but the gravel rather smaller, and more earthy towards the top. These three divisions are most distinctly marked.

26th Nov.—Camp above Jynta, ascent to lateral ridge, path good and easy. Then along face of ridge with a view of the Ramgunga, and that most beautiful flat in its bed nearly 10 miles† in length, cultivated every inch of it. Opposite appears Nythana fort, it bore 5° S. E. from the top of the ridge. Mica slate is the rock all the way to the top of the ridge. A patch of the gneiss found near Almora, and on the road from Dooâra Hâth to Palee then occurs. Day cloudy. 4 P. M. 24.835, 65.5, 58, 50.

27th Nov.—To Goorja Chowra below Ooperara 3½ hours, about 10 miles. On starting, accompanied by gneiss. Path good, oblique, ascent along gentle slopes thinly covered with Cheer pines. Summit of the ridge,‡ a fine level piece, picturesque spot for a house, water close, with plenty of fine timber. Descend obliquely along smooth grassy hills, excellent road winding round a glen. Pass a village just established (last rains,) cross over a low ridge, and come down upon Ooperara. This part not so picturesque, or path so good. Every where gneiss. Descend from Ooperara to the Bino path better gneiss, but of a different type, small grained, grey and approaching to mica slate. Encamp on bank of river, which here re-

* The Kutsaree valley, six miles long, and from half a mile to nearly a mile in breadth, joins the Ramgunga from the north at Gunnai. It is beautifully cultivated, and the surrounding mountains yield the best iron ore (chiefly red hæmatite,) in the province, and here are the most extensive iron mines.—J. H. B.

† This part of the Ramgunga valley is the richest portion of Kumaon, and forms with other fertile tracks, the pergunnah of Palee.—J. H. B.

‡ This ridge is called Jowrasee and Doorga Dhee, and would be the finest position for a large town in the whole hills.—J. H. B.

ceives another stream from East. *Dheeghat** is below, about two or three miles. Encamped there in my Sorenugur journey. This was one of the most pleasant marches we have yet had. Cloudy all day, and now I think threatening rain. 5 P. M. Bar. 26.595, 64.

28th Nov.†—To Paton, steep ascent of an hour and a quarter, two patches of gneiss run down the hill, as indicated by huge blocks scattered over the surface. Pass through Bhumoree. Khyldora nearly opposite camp and a little above. The following is a sketch of this river valley. (See plate No. I.)

After ascending to separating ridge between Beonee and Bino rivers, the path leads along the summit nearly level. The whole of this ridge, at the summit at least, is gneiss, occasionally passing into granite. Many of those huge blocks curiously supported are observed, similar to those at *Dhee*.‡ This is an appearance I believe characteristic of granite. Day excessively cloudy, and threatening. The sun has not now been visible these three days; huge banks of clouds are collecting towards the plains. It appeared to be snowing on the Jowahir peaks, of which we had a glimpse this morning. 4½ P. M. Bar. 24.512, 57.49, 40.5.

29th Nov.—Rained all day, a most miserable day.

30th Nov.—A good deal of rain on the night of the 29th.

1st Dec.—To Dyra, morning truly dismal. Towards 10 o'clock a few gleams of sunshine, which tempted me to move for Dyra. The road was tolerably good, being an easy and uniform ascent, the time was four hours, about nine or ten miles. The rocks I think gneiss; the specimens 1 and 2 are hardly doubtful. They are small grained, grey structure, sub-schistose. No. 3 is a kind of granite containing schorl. No. 4 a semi-transparent quartz rock. In a small patch of mica slate, remarkably tender, containing veins of quartz; the latter though possessing all the aspect of the hardest specimens, yet broke between the fingers.

* Dhee Ghat, a fine valley below the junction of the Bino and Beonee rivers, tributaries to the Ramgunga,—J. H. B.

† Captain Herbert here enters British Gurhwal, and leaves Kumaon Proper.—J. H. B.

‡ Dhee-Dhoora, a remarkable spot between Almora and Lohoghat.—J. H. B.

This village is small, rice is not grown, the elevation being too great. Wheat* sown in October and cut in May. At Paton rice is grown. At Almora they sow wheat latter end of November. Half way it began to hail and rain, and continued to the village nearly. Encamped on a delightful grassy and level spot above the village; very cold.

2d Dec.—Last night to my astonishment heard the Almora gun, distance is upwards of 40 miles. I had doubts on the subject till this morning at day-break, when I heard it again.

Lovely morning, not a cloud visible. Hoar frost on the ground, and tent all stiff with it. Temperature at 8 A. M. 41.5 moist, 35.5 glass in shade 35. Bar. at 10½ A. M. 23.005; 55, 44.5, 37.4 moist; in tent 53.47.

At 12 started for Marora. Steep ascent at first, with snow, to good sized temple—Binsur. No account when built, a figure of the bull in front, and iron bells hung about his neck as offerings; trees Deodar, all male that I saw, and kursoo oaks; rocks, gneiss the whole ridge from temple level; after two hours descent begins. Here observed barometer, 2 P. M. 22.13, 54, 41.5, 37. Much snow, and descent very bad; two hours of it to stream with an intermediate small ascent. At stream fine Rons trees or Roons, also Neegalas;† hemp‡ sown here, and on the ascent to Dyra, which requires apparently a cold climate, was now cut. From river easier descent, wheat fields two inches above ground. Cross Sanee, a little below the confluence of the stream followed on two planks, goodish stream; road up its bed to Sarkot. (High Pass higher than that crossed, by name Doodoo-ke-jolee. (B.) Sarkot a large village with 60 houses.) Small ascent to Murora, village of 50 houses. Many sheep and goats—former little fellows black, with short tails and curly horns; unwilling to sell; hemp soaking; arrived at 5 much fatigued, five hours on road. Gneiss the whole way, in some places so soft and earthy, as to be like the brown tender mica slate of Almora; here

* In all elevated places wheat is sown very early, in order that the young plant may be strong before the frost and snow begin. In one day's march, young green wheat and rice can be often seen.—J. H. B.

† Ningalas, Hill bamboo, only found on high mountains.—J. H. B.

‡ Great quantities of fine hemp are grown in Gurhwal by the lower caste of Khusias. The Kumaonees have a prejudice against growing it.—J. H. B.

huge blocks of a hard and porphyritic type, like what I observed on the road to Mason. 11h. 40m. A. M. Barometer 24.070, 61.55, 45.5.

3d Dec.—Halted.

SPECIMENS.

28th Nov.—No. 35, 1787, gneiss well defined, summit of ridge dividing Bino from Beonee.

1st Dec.—No. 36, 1788, a brownish grey gneiss of a fine grain, passing into quartz rock.

No. 37, 1789, ditto less like quartz rock, more like mica slate.

No. 38, 1790, an amorphous granite gneiss, containing schorl disseminated light buff.

No. 39, 1791, pure haloidal (milk) quartz.

2d Dec.—No. 40, 1792, reddish-brown gneiss, summit of ridge.

4th Dec.—Murora to Bugwaree 3 hours; 5 P. M. barometer 24.422, 62, 54, 44. High peak bears 93 N. E., road very bad to-day at starting, and for some miles leading up and down through and over huge block of gneiss, scattered about in every possible variety of confusion.

At two hours descent to bed of stream here called Seons* as well as Saneë, receives the Nana-gad from the west. Brasee village left bank, Goree right bank, then gradual ascent to Bhugwaree. Encamp south of it about half or three-quarters of a mile.

Cloudy again; gneiss the whole way, but very seldom visible in situ, never in strata. Huge scattered blocks, sometimes tender like mica slate.

5th Dec.—Bhugwaree to Gunguon three hours or more. The road to-day was a general descent, but very uneven, continual ups and downs. We have come down, however, about 1000 feet altogether.

At $\frac{1}{2}$ an hour ran 58 S. E. At $1\frac{3}{4}$ Kunyoor. At 2. Descent to bed of Seons or Saneë, rather of its feeder, just above confluence. A very

* Saneë river rises at Doodoo-ke-tolea mountains, and after receiving the Chip-pula from Chippulgat, joins the Ganges under the name of Nyar river, 30 miles above Hurdwar.—J. H. B.

pretty spot. The whole descent from Kunyoor* was pretty. The path then ascends again and continues alongside of mountain, then descends to cross the river knee-deep, and again crosses close to camp, which is on a fine grassy level with the river close by our door. Splendid pools for bathing, six to eight feet deep, and 40 or 50 feet long. The tributary stream is that crossed in the Sreenuggur trip on the march from Kunyoor.

Rocks to-day at starting, gneiss, more or less well defined. At Kunyoor perfect, with much granite, also probably veins. The latter contains schorl; much of the granite was so soft, that it might be dug with a spade. On descending from Kunyoor, the mica slate with garnets were found near Aeën, which is also on the border of a gneiss district. Latterly approach towards chloritic and argillaceous schist; no good examples of strata any where, as usual the more perfect gneiss district covered with huge blocks so characteristic of this rock. A cloudy day.

5 P. M. Bar. 25. 315, 62, 52, 48.

6th Dec.—Halted, strong hoar frost during the night. Ghursaree, Punna, Kolinda Godee-gad and Bapta.

7th Dec.—Hoar frost from Bindhelee to Jawaee, $3\frac{1}{4}$ hours, road very uneven and baddish, ascend to ridge and descend to Ghursaree 1 hour, Punna, opposite high, ascend to Kolinda 1h. 45m. and to ridge 2 hours, wind and descend to Godee-gad, join Seons $2\frac{1}{2}$ hours. In river bed to village, latterly small ascent.

The rocks to-day schists and quartz rock, being the same series, and accordingly every variety of compound between their extremes is found. The schist is sometimes inclining to chlorite schist, sometimes to argillaceous, but I think always inclining to the character of magnesian, indicating the presence of talc rather than mica as the schistose constituent. Near the village, a nucleus of greenstone desquamating in crusts, just like the granite at Dhee in the neighbourhood of the amorphous mass strata of the same rock, with more or less contamination of quartz. The views suggested by these facts, full of interest, require development.

* Kunyoor is three quarters of the way from Almora to Sreenuggur, and was once a Thanna and Tuseeldaree. The Senior Assistant Commissioner in Gurhwal has a bungalow here, and the roads in its neighbourhood in every direction are now excellent.—J. H. B.

SPECIMENS.

4th Dec.—No. 41. Perfect gneiss grey, contains garnet and schorl.
Murora to

5th Dec.—No. 42. Small grained dark grey gneiss.

No. 43. Small, oscillating towards mica slate.

„ 44. Large grained granite, Kunyoor.

„ 45. Small grained ditto.

„ 46. Schist, talcose? or micaceous, like the rock at Aeena.

7th Dec.—No. 47. Talco-quartz, argillaceous schist, greenish grey.

No. 48. Talco-quartz, greenish grey.

„ 49. A curious quartz rock.

„ 50. Still better defined talcose schist, bluish grey.

„ 51. 1803, [1752*] Greenstone, amorphous, desquamating in
crusts.

„ 52. 1804. A greywacke sub-schistose, micaceous, argillaceous
quartz rock, (greenish.)

„ 53. 1805. Ditto, grey light.

„ 54. 1806. Argillaceous quartz rock, dark-bluish.

8th Dec.—4m. 10h. 25.775, 66.5, 61.51. A short march to-day
owing to mistake.

Quartz rock of various types, *i. e.* more or less impregnated with
the green constituent, direction 300 S. E. dip. to E., passed through
Sookhaë. Encamped at Muteeala. Usal-gad and Meets Seons from
East.

9th Dec.—4 P. M. 25.857, 68, 65, 55. Partially cloudy, a short
march of $2\frac{1}{2}$ hours, cross Usal-Gad at starting, along river side,
ascend to Pass above Lachee village in lateral glen, (E. side.) Descend
passing through village, come down glen, and enter valley of the
Sanee again. Down the same passing Hurkandee, which is on the
right bank. Encamp at Bhungār and Nowgaon, latter left bank,
former opposite.

Rocks to-day fine greywacke slate and quartz rock, passing into
greywacke with every possible mixture of these rocks. Direction
whenever observable, North and South, strata nearly vertical, but

* I do not know what the No. 1752 refers to, the series No. 1 of this Tour is 1753,
vide subsequent note, sheet 7; 1572 must be added to all Nos. of this series — J. H. B.

dipping to W. A plant here used as a *turkaree*, bears black berries, sown.

10th Dec.—Nowgaon to Chundolee. Descend and cross river along flat to Bhungár about 15 miles, fine peepul tree. Above Nowgaon Seeonsee, 1 hour to Sera. Bhakund-Purind; one and quarter to Munjee. Above is Chundolee, opposite Domgla, large village, road generally level, except last place steep ascent. River takes turn here. Rocks, quartz rock, passing into greywacke. Therm. 64° to 39° covered with dew.

11th Dec.—Chundolee to Syndhar, gentle ascent up side of hill, oblique, $\frac{1}{2}$ an hour. Usoor Gurhee* to right high up, 50 miles to Neelee, 65 to Myla, latterly ascending. Ascend Pass, descend to stream and ascend to Kylmar. Descend again and ascend to Syndhar which is in a lateral glen, and away from the Sanee. Rocks more inclining to greywacke slate latterly. A good deal of very red earth here; houses painted. Hills remarkably bare. 5. p. m. 25.535, 64.5. 56.52. soon after 52.2, 51. Opposite Neelee is Choundool.

12th Dec.—Thermometer min. 41, general fog. Up glen good road and easy ascent, one hour to breakfast, as it was stated Soonkolee, the first village, was a long way, and no water procurable beyond this point.

Rocks, the argillaceous quartz rock and greywacke slate, the reddish type; fog still in valley at 10 a. m. Air 52, moist 50, in the shade of a tree 49 46.

Another observation gave in the tree shade 52.5, 48.5, and in the sun 66.5, 56. Here the point of deposition must have been the same, as the thermometers were kept nearly in the same spot.

After breakfast proceeded one hour ascent to Pass. Bar. at 12 or a little after, 23.935, 53, 52, 45. Lungoor† bearing by needle 275° 54'.

Depression,	..	..	..	..	..	15.20
R.	...	..	..	..	..	6.20

10.50

* Usoor Gurhee, one of the numerous hill forts with which this frontier of Kumaon and Gurhwal is studded. Joonia Gurh, Gunnea Gurh, Goojroo, &c. &c.—J. H. B.

† Lungoor fort, a conspicuous place in the South of Gurhwal, not far from the plains at source of Kohriver. Here the Gurhwal Raja held out for some years against the Goorkhalee invaders of his country.—J. H. B.

A remarkable isolated spreading hill, 295° . A high hill with broad top $324^{\circ} 43' - 12\frac{1}{2}^{\circ}$ E. + $4\frac{1}{2}^{\circ} = 17$ —steep descent from Pass, afterwards easier. One hour to Nowgaon. Soonkolee about $\frac{3}{4}$ mile further, total 3 hours, and good road. From the Pass down greywacke slate, with frequently a talcose aspect on the laminar planes, remarkable for splitting in the direction of the lamina, and for breaking with a sort of cleavage across them.

13th Dec.—Ther. to 58° at 1 P.M., 5 P.M. 25.255, 61.5, 57. 56.5 52. Cloudy. Nowgaon to Lireea on the left bank of Muchlad, $2\frac{1}{4}$ hours, about 7 miles, road good. Ascend and descend several times, passing by Musmoor and Poktar, latter up a nulla, which falls into Muchlad. Rocks greywacke slate, olive bluish, &c., much of the red colour. Cloudy and I fear snow. Present dip= 47 , so far good. Hill uncommonly bare round.

14th Dec.—Ther. 41 minimum. Heavy dew, steep descent to cross Muchlad, a middling stream. A very crabbed ascent, wind round glen to right and descend a little to Khergoan.

Greywackes late the whole way, some appearances indicating the passage of this slate into chlorite slate and talc slate. Another peculiarity is the nodules of quartz or amorphous masses, also veins of every shape and size.* It has often struck me, that quartz is the granite of the clay slate and greywacke formations.

15th Dec.—Cloudy with partial gleams, time of marching $2\frac{1}{2}$ hours. Descend to stream and ascend, wind round to Kande village on hill. Descend to stream, steep ascent, and wind round to right to Dang, part of Binjolee. 4—Bar. 25.665, 66.59, 51.5.

Occasionally cloudy, rocks to-day the same greywacke slate, very smooth and shining laminæ. Often breaks into prismatic fragments; here the slaty structure predominates, and I think excellent roof slate might be found, perhaps even writing slate and an inferior whet slate.

16th Dec.—Ther. min. 44. Cloudy morning, a long, and fatiguing march to Chamasee village on flat banks of Sanee. Steep descent, 3h. 40m. time of march, rocks same as yesterday. Bar. 24.27, 715, 69.5, 67.5, 59.5.

* I have certainly seen slate rocks very much disturbed in the neighbourhood of quartz veins.—J. H. B.

Cloudy, crossed one ridge and round glen, cross a second and descend ; mango trees here, good road. Ther. max. 73.5, min. 50, dew 61.8, cloudy.

17th Dec.—Thermometer 50, dew. Cloudy. Choumasoo to Bud Kholoo, time $2\frac{1}{2}$ hours, level along river bank for two miles through cultivation, one mile to Oaklet, cross river four times, and Chipila, here close by village, once.

Barometer at the confluence of Chippula and Sanee, 9 A. M. 28.16, 62.5, 60.3, 56.5, river 58. Latterly road much obstructed by round stones and jungle rock. The greywacke slate continues, but changing a little in character. There are the greenish grey beds too which distinguish the junction of this formation and the sandstone. The rocks are in fact exactly like what we have above the Buleea,* and also above Bar,† color purple-blue, more rarely olive, cloudy day ; the max. 72.5. The Chippula is much smaller than the Nyar, the latter is getting a great body ; a road goes to Lungoor from Choumasoo by Koolharoo.

SPECIMENS.

10th Dec.—No. 55, 1807. A greenish sub-schistose, scaly greywacke slate, less of quartz than the preceding ; breaks with a hackly transverse fracture, (structure, bladed ?)

11th Dec.—No. 56, 1808. An undoubted quartz rock, bluish grey, contains little mica.

No. 57, 1809. A variegated sub-schistose, irregularly-bladed greywacke slate, predominant color buff, intersected by veins of argillaceous matter and of quartz.

12th Dec.—No. 58, 1810. A bluish green slate, contains mica, with an approximating appearance to talcose schist, structure lamellar, like an oyster shell.

No. 59, 1811. Ditto olive, contains mica, much nearer talc slate, curved laminæ.

No. 60, 1812. Fine greywacke slate, the scales of mica not distinguishable without a lens ; more talcose, sub-schistose, quite soft.

13th Dec.—No. 61, 1813. Ditto, dark olive, talcose lustre and very soft.

* Bulea, between Bheemtal and Bamowree.

† Barb, at foot of Simla hills.—J. H. B.

14th Dec.—No. 62, 1814. Ditto, olive, still more talcose.

No. 63, 1815. Ditto, amorphous, with quartz almost perfect talc.

No. 64, 1816. Ditto, more inclining to chlorite and quartz. These three were all in the same spot.

15th Dec.—No. 65, 1817. Greenish grey greywacke schist, inclining to chlorite.

No. 66, 1818. Straight laminar olive slate, with talcose aspect.

16th Dec.—No. 67, 1819. Curved laminar ditto.

No. 68, 1820. Purple greywacke schist, scales of mica very visible.

No. 69, 1821. Ditto, more granular and amorphous.

17th Dec.—No. 70, 1822. Purple granular greywacke mica.

No. 71, 1823. Transition to slate.

No. 72, 1824. Fine greywacke slate.

N.B.—These three from same spot.

18th Dec.—Thermometer min. 50, Heavy dew, fog all round and above, two hours to Bilkhet,* where halted on account of rain. The path ascends alongside of bank and turns up glen. Rock as yesterday, cross small stream and ascend; descend to flat and along river. This is rather an extensive piece of ground. Rained all the forenoon but not very heavily, a little thunder and one flash.

19th Dec.—A miserable day, rained the whole preceding night and this day, tent leaking, field where encamped a swamp or rather lake, about 5 inches of rain during the night of the 18th, $2\frac{1}{2}$ as measured by the chillumchee.

20th Dec.—A gleam of sun about noon gives hopes of clearing. I may note here some remarks I made, which may lead to some conclusions. The rain came on apparently with difficulty, at first very gently, then with thunder and lightning, each discharge being followed by a smart but limited fall, which again intermitted, when another flash brought another fall. This continued for many hours, and even through great part of the night. The following day we had comparatively steady rain, though with intermissions, which appeared to depend on change of wind, but scarcely any thunder or lightning. The nearest flash was about 5000 feet.

* Belkhet and Choumasoo are the finest parts of the Sanee or Nyar valley. This country, *Mulla Sulan*, is very uninteresting.—J. H. B.

21st Dec.—Rain at intervals yesterday, and a most bleak and uncomfortable day. This morning universal fog till near 11 o'clock, when it cleared up, and we had a most splendid day to dry the tents, &c.

10 A. M. Barometer 28.22, 56, 51.5, 48.

4 P. M. Barometer 28.09, 63, 57, 51.

Ther. max. 64°.

22nd Dec.—Ther. min. 38.3. Universal fog, cleared up between 10 and 11, start for Dunda Mundee, cross the Nyarhip-deep in a canoe, beautiful scenery, the prettiest spot I have seen this tour. Fine flat. After crossing the river a steep ascent, latterly less so to the Theka Punee. Lungoor to S. E. and not above 2 miles direct distance, a village, Rookuraree, about 1 mile or less, 4 hours and a quarter. Encamp.

Rocks clay slate, *i. e.* greywacke slate intermixed with quartz rock, a patch of limestone, then greywacke and quartz rock. Arrived late.

Thermometer morning 23d, 41° or 2.7 higher than at Bilket.*

23d Dec.—Thermometer 41° at sun-rise. A little ascent to Dooarkhal. 8½ A. M. 24.76, 47, 42, 40. Descent rather gradual, two hours to Dewsa. Thence 1½ hour down to river† bed and along in it. Danda Mundee.

Rock on the Pass and below, a greywacke slate nearly allied to talc slate; then mica slate continues nearly to this place. Dip near this N. W., no getting any accurate measures. A good deal of quartz rock the whole way. The mica slate begins just at Dewsa. A small patch of brown rotten mica slate was observed yesterday near where we encamped. Day cloudy.

4 P. M. Barometer 27.13, 63.58, 50.3.

SPECIMENS.

22d Dec.—No. 73, 1825. Bluish grey, fine greywacke slate.

22d Dec.—No. 74, 1826. Purple ditto, less lustre.

No. 75, 1827. An amorphous rock compound, requires examination, two specimens.

No. 76, 1828. A variety of 74, laminæ straighter.

* In the cold weather the mornings and nights in the vallies are colder than the hill tops, and the hoar frost is much more severe.—J. H. B.

† The Koh river.

No. 77, 1829. An impure limestone, veins of crystallized dolomite, two specimens.

No. 78, 1820. A black schistose rock, (carburetted?) It is the same as that mixed with the limestone, and perhaps answers to the gypsum rock, intersected by veins of carbonate of lime.

No. 79, 1831. Greywacke, greenish-grey, contains some meral; lead?

No. 80, 1832. Ditto.

23d Dec.—No. 81, 1833. A compound anomalous greywacke slate, contains talc, summit of the Pass.

No. 82, 1834. Talcose schist, undulated laminæ.

No. 83, 1835. Micaceous schist, (gneiss?)

No. 84, 1836. Micaceous argillaceous schist near Dunda Mundee, curious stain, two specimens.

24th Dec.—Thermometer min. 40°. Cloudy. Ascend to Pass Kunda Khol. Course due West. Descend and ascend, and again descend to Oomulda 1¼ hour. Ascend to Pass, course varying from West to South-west. Fine view down small river valley, Sorgaon or Sonargaon. Along ridge level and good path, 1¾. Total 3 hours. Descend ¼ hour to Poorangaon. Rain came on.

25th Dec.—Rained all night. In the morning Ther. 37° min. Snow on ridge to be crossed and on other peaks. At 12, gleams of sunshine, start at 1. One hour's ascent to Konda Gullee. Langoor 42° N. E. Yesterday's Pass 18° N. E. (See plate II.)

Barometer 2 P. M. 25.245, 53, 46.5, 42.

A little more oblique ascent, and splendid view of the plains. Descend and wind round glen, then descend again to flat. One house and fields. Steeper descent with sandstone suddenly appearing in fragments, the previous rocks having been quartzose greywacke. Limestone and greywacke schist, cross small stream, and ascend to Pudinda. Small village on ridge in sight of the plains. High ridge and curious flat form, peak to N. and N. E. The true serrated stratiform sandstone ridges appear South and West.*

26th Dec.—Bar. 10 A. M. 26.40, 63.5, 55, 49. Miserable afternoon yesterday, fog and latterly rain. To-day appears fineish, but

* At Churck Khal, in this neighbourhood the Civilians of Bijnore have built a bungalow, and the high road from Sreenuggur to Nujeeabad passes by it.—J. H. B.

still unsettled; start at 10, a steep and rugged descent in great part to Kotdwara, a chowkee and thana, formerly a stockade with regular gate. The Dunda Mundee stream flows here. Kotdwara is on the very first little rise from the plains, a four hours' march.

Rocks the whole way, sandstone with the red and green clay found at Nahun. The uniformity of the sandstone types here is unusual. Hurdwar is by far the most fertile place I have seen, and from the Bheem Gora Pass, a very fine suite may be collected. 9 P. M. Barometer 28.66, 66.49, 48.

During the night rain. They say no road through the hills from here by the Patlee Doon. It breaks off near Dunda Mundee.

27th Dec.—To Kourhea, a short march of 1 hour. As our baggage was almost all wet, and we had been marching rather severely, I made this short march, instead of a halt. Plain road;—Cross the Kotwara which goes to left, afterwards the Koh, no water in it. The former a good deal. Map very erroneous.* 11. A. M. Barometer 28.89, 68, 65, 56.5, 81, 65.5, 62.56.

24th Dec.—No. 85. An argillaceous gneiss? Ascent from Dunda Mundee.

No. 86.—A ditto, approaching to clay slate.

25th Dec.—No. 87. Purplish argillaceous quartzose greywacke or argillaceous quartz rock.

No. 88. Siliceous limestone, with veins of calcareous spar.

No. 89. Red and green fine argillaceous schist, very like shale.

26th Dec.—No. 90,† 1842. Sandstone, two specimens.

No. 91. Ditto, softer.

No. 92. Compact felspar?

No. 93. Greenish grey sandstone, approaching to greywacke, splintering fracture.

No. 94. Ditto, argillaceous sandstone.

No. 95,‡ 1752. Ditto amorphous green rock.

31st Dec.—No. 96,† 1752-1848. Argillaceous sandstone.

No. 97,† 1752-1849. Ditto.

* No. 66.—Indian Atlas is totally incorrect in its delineations of the lower hills, and especially of the Patlee Doon.—J. H. B.

† Note by Capt. Herbert.—Add 1752 to all these numbers. This note explains the former insertion of 1752.—Eds.

The Nos. here after 1848, anticipate Journal.—J. H. B.

No. 98.† 1752-1850. Ditto.

No. 99.† 1752-1851. Ditto.

No. 100.† 1752-1852. Perfect sandstone hard, in contact with a loose sand, almost a quartz rock.

3rd Jan.—No. 101 (1)* 1752-1853. Micaceous sandstone.

No. 102. (2)† 1752-1854. Ditto bluish grey (Surek-a-rao,) Patlee Doon.

No. 103. (3)† 1752-1855. Argillaceous, reddish, almost clay, with green spots, (to Gurur) Patlee Doon.

No. 104.—(4)† 1752-1856. (Shale?) compact argillaceous sandstone, greenish grey.

3rd Jan.—Specimens of Nos. 105.—(5) 1752-1857. The clayey type greenish grey.

28th Dec.—Cloudy morning. Kooreea to Tanda $7\frac{1}{2}$ to 8 miles, vile road through jungle, feet quite wet, as if dipped in water, cross a river supposed the Koh, course about South or a little East of it. About 2 miles before reaching Tanda, emerge. Country a little cultivated.

29th Dec.—Ther. min. 44. Cloudy. Day-break 45 from Tanda to Burapoor. A march of 8 or 9 miles through a tolerable country, latterly ascend a table of the red earth and cross the Kotdwara nulla. This place is a middling town with some pukka buildings. It is similarly situated to Kasheepoor just on a rise, the ground undulating. The ascent to it was quite perceptible. Barometer 4h. 15m. P. M. 29.080 67, 5 P. M. 60.55.

30th Dec.—Partially cloudy, a mild morning. Heavy dew on the jungle grass.

To Bheerbhanwala 8 miles, the road through jungle, latterly undulated, so as to have the appearance of small hills. The surface from Burapoor is the hard reddish clay, which bears a resemblance to that of the strata, not only in colour and consistence, but in the small tubercular pieces which form a hard gravel on its surface when washed by the rains. It has the same arrangement of surface as is observable to the westward, that is, of isolated mounds with perpendicular sides and step-like terraces. Whenever a river occurs, this terrace or raised sur-

* Here a new century of Nos. commences.—J. H. B.

face is broke through by a broad and tolerably deep valley. Did not observe any gravel till close to this place. It occurs on the surface, and imbedded also fragments of sandstone. The immediate neighbourhood here is highly picturesque, nor do I know of any similar spot to compare it with. The undulations of the ground are sufficient to constitute small hills, the view is changing every step, the roads are good, and the disposition of the trees extremely varied and agreeable; it is really a beautiful spot.

A great scarcity of water, the beds of water-courses quite dry, the water of the village is obtained from a *gool* or canal. Were it not for this scarcity, I cannot conceive a more eligible spot for villages.

31st Dec.—Bheerbhanwala to Boksha's village. Cloudy morning and threatening rain, a pleasant and good road for about 2 or 3 miles through open forest to Kaloo Shaheed.* Ascend a little to Pass not above 100 feet or 200 at the very most, sandstone. Descend and hold on through narrow tortuous valley, high sandstone hills on either side, cross several small streams. Latterly road more uneven to a comparatively wild valley, with the only cultivation yet seen. A guard is stationed here. The valley appears to extend towards N. 15° E. and also in the direction S. 45° E. The direction in which we have come about S. 40° W. appears closed up. The course in the forest was N. 10° E., afterwards N. 40° E., latterly N. and W. of N., and again E. of N. The valley is even here of no width, not a mile.

A stratum of the red clay (specimen) with tubercular gravel (*konkur*) lying between two strata of sandstone, rendering it more than probable that the red clay so often noticed as occurring in the Turai, belongs to this formation. Observed also earth of various colours passing into this clay or this sand, all of them members of the regular strata. Observed a stratum of very hard sandstone lying on mere sand, so loose that the application of the hammer to the upper and hard rock set the sand in motion. Observed many instances of the sandstone approaching the conglomerate structure, containing pebbles of every size, and always rounded and imbedded, amongst them fragments of the olive coloured greywacke slate. Observed in a rounded piece of sandstone when broken, concentric stripes apparently indicating the

* The Pass of Kaloo Shaheed (so called from the tomb of a saint) is the main entrance into the Patlee Doon over the outer range of sandstone hills.—J. H. B.

existence of nuclei in this rock similar to what are found in granite. Another resemblance it bears is in the amorphous masses it is so often seen in. And if it be distinctly stratified much oftener than otherwise, this is more than is true of granite, or rather gneiss, between which and granite there is the same difference, and no more, as between the stratified and unstratified sandstone. Is not every rock found occasionally unstratified? clay slate certainly; witness greywacke, mica slate; witness quartz rock, limestone assuredly, hornblende slate, talc slate in potstone and greenstone slate in greenstone. If so, then what means the turmoil made about granite, and why is the same rock in this instance to have two names, and so much stress laid on a difference of feature equally applicable to every rock? * 4 P. M. 28.95, 68.5, 65, 56.

1st Jan. 1828.—A most dense fog, cleared up at 10. Motee Laul to Khata on the Ramgunga. Course South-east, down narrow valley watered by the Sona nuddee which we crossed several times (9). The sands are washed for gold,† whence its name. Mercury is used to take up the gold, but is again lost in the fire, as they have no apparatus of collecting the vapour of it. Four men working all day will earn two annas. A miserable pittance, if true. Ascend a little and pass through a forest of saul trees, not very thick. Descend to the Khadm of the Ramgunga. Large round stones in the bed of the river, cross, rather wide and half thigh-deep, encamp on east bank, rather a pretty place, fine plain, but of no great extent, enclosed by low hills covered with jungle. Khuta village $\frac{1}{2}$ koss, distance about 8 miles.

Sandstone the only rock. To-day observed the yellow clay alternating with sandstone, and distinctly stratified, though in very thick strata. In another place observed a stratum of round stones overlying distinct stata of the sandstone, and over that, a stratum of the common

* I hope I shall not be considered presumptuous in offering this. Granite *per se* and gneiss *per se*, only differ in regard to stratification; but granite in contact with schistose rocks, and appearing to be erupted, and *altering* the strata into which it enters, causes the *turmoil* to which Capt. Herbert refers. The Himalyan (snowy) range presents examples of gneiss in enormous beds, and of apparently cotemporaneous granite; but it also presents numerous instances of *obtruded* granite, at least as far as appearances go.—J. H. B.

† The gold washing in Patlee Doon is farmed for Government at 25 Rs. per year!

mud-colored clay, both of them with the same inclination as the inferior strata.

From the observations made in this day's march, I have no hesitation in considering not only the Doon as composed of strata of the new red sandstone,* but also the part of the plains lying at the foot of the sandstone hills, and marked by the hard red clay so often noticed. 5 P. M. Bar. 28.975, 69, 62, 57. Max. 75.5.

2d Jan.—Thermometer min. 42. A dense fog cleared up at 9, along by river perfectly level, after which turn a corner over some low stony hills, and enter the Patlee Doon, a very pretty valley, about 5 miles by 2, surface quite level and not only cleared of jungle but of grass, a fine short green herbage. When I say of even surface, I except a bank which runs along its whole length, and as a step divides it into nearly two equal parts. The Ramgunga continues to left at some distance, only one village, Seera-ka-rao, where encamp. Formerly it was inhabited and highly cultivated; but great sickness prevails in the months of Usoj and Bhadon, which carried off the people. This village,† as well as Khuta and Mooteesaul are inhabited by Bokshas, a race who seem to be the same as the Tharoos on the Goruckpoor frontier. The hill people do not eat with them. No rocks visible to-day; traces of wild elephants. Bar. at 4, 28.82, 73.5, 70, 57.79, 69, 60.5, 56.

3d Jan.—Ther. min. 38.5, moist, 37.5. No fog, a great change, dew point from 50 to 36. Heavy dew on the grass. Seera-ka-rao to Gurur 12 miles, people up by 1.

A good road in general, but some ups and downs, three miles was a continuation of the Patlee Doon, and the remainder a succession of narrow flats opening out more or less. Upon the whole it ought to be a fine country, yet there is not a village along this line. A range of low hills shut in the Ramgunga towards the plains. A road breaks off about four miles back which leads through them to Juspoor. There is also a road to Chookoom on the Kosillah; sandstone prevails all the way, and in one of the torrent beds crossed, is seen a fine example

* This may be true, but why refer every thing to the European types? When Capt. Herbert wrote, the Sub-Himalyan fossils had not been discovered. These determine the age and the analogies of the range, and not mere *mineral* characteristics.—J. H. B.

† This tract, though still unhealthy, is slightly improved of late in regard to cultivation. The tobacco and turmeric are particularly good.—J. H. B.

of those shattered beds of parti-colored materials which have been noticed elsewhere, specimens were collected. The peculiar interest of these beds is the transition they present on the one side into common earth or clay, and on the other into sandstone. Another remarkable feature is the number of colors often exhibited within a limited space. Reddish brown, greenish grey and yellow are the most prominent. Frequent traces of elephants. Day cloudy.

4½ P. M. Bar. 28.325, 67, 59, 55.

How is it the dew point is again risen to 51?

5. P. M. 28.300, 63, 58, 54.5.

The Ramgunga here takes a bend to N. E., having hitherto accompanied us on a S. E. or E. S. E. course.

4th Jan.—Ther. 49. Moist 46.5. Cloudy and threatening, 10° warmer than yesterday. Gurur to Jumera and Sankra 10 miles; ascent gradual to Aonla Boongee-ka-khal.* Bar. 8½, 27.31, 53, 51, 44. Hills to S. W. highish, sandstone, descend latterly through bed of stream where greywacke slate is found, but the junction of the rocks not visible. Go along a level piece. Ramgunga close, villages Dandree and Kala Khan, latter on N. bank of river, gradually ascend, latterly more steep, below greywacke slate covered with numerous round boulders, similar.

SPECIMENS.

4th Jan.—No. 206, (1)† 1858. Sandstone passing into greywacke to Jumera and Sankra.

No. 207, (2) 1859. Argillaceous sandstone, bluish grey.

No. 208, (3) 1860. Olive ditto, fine schistose greywacke slate.

No. 209, (4) 1861. A greywacke—all the same place.

No. 110, (5) 1862. Sandstone below the preceding.

No. 111, (6) 1863. } Greywacke slate, fine olive sandstone in con-
No. 112, (7) 1864. } tact almost.

No. 112½, (8) 1864½. Red earth, white ant hill.

6th Jan.—No. 113, (1) 1865. Same as No. 2.

Numbers in anticipation of the Journal.

No. 114, (2) 1866. Quartz rock, contains chlorite and talc.

No. 115, (3) 1867. The red and green earthy rock.

* Here Capt. Herbert re-enters Kumaon Proper.

† The middle Nos. are merely those of the day.—J. H. B.

7th Jan.—No. 116, (1) 1868. White quartz rock.

No. 117, (2) 1869. Purple quartz rock, contains talc.

No. 118, (3) 1870. Fine dark greywacke slate.

No. 119, (4) 1871. Greenstone.

8th Jan.—No. 120, (1) 1872. Fine greywacke slate, smooth.

9th Jan.—No. 121, (1) 1873. Quartz rock with brown stains.

10th Jan.—No. 122, (1) 1874. Quartz rock.

11th Jan.—No. 123, (1) 1875. Coarse greywacke slate.

No. 124, (2) 1876. Limestone slate.

No. 125, (3) 1877. Schist in contact.

No. 126, (4) 1878. Ditto, near.

Similar to those belonging to the sandstone, and a little higher I discovered a small patch of that rock in situ, I think. Higher up the round boulders disappeared, and nothing but fragments of slate are seen decomposing into a very reddish earth. Descend to a small flat by side of Ramgunga. Sankra village a little above. Slate mountains opposite bank. Very cloudy and threatening. Bar. 4 p. m. 28.13, 65.5, 60, 55.

No strata any where visible. Road breaks off to Chookoom and Chilkra here.

In anticipation of the Journal.

11th Jan.—No. 127, (5) 1879. Fragment, amygdaloid?

No. 128, (6) 1880 Limestone with pyrites.

12th Jan.—No. 1881, (1) Quartz rock.

13th Jan.—No. 1882, (1) Greywacke slate above Kyoonsal.

No. 1883, (2) Above.

No. 1884½, (3) Ditto in the bed of the river.

SPECIMENS OF 12TH JANUARY.

No. 1881, (1) Quartz rock.

13th Jan.—No. 1882, (1) Greywacke slate above Kyoonsal.

No. 1883, (2) Ditto above in the bed of the river.

No. 1883½, (3) Ditto in the bed of the river.

JOURNAL OF THE 5TH JANUARY.

Rained all day. Halt.

6th Jan.—Sankra to Ujolee. Towards noon cleared up, and we started for Ujolee about 3 hours' march, steep ascent and then descend,

and again ascend to village, which is at no great distance from the river. Two remarkable peaks North of the river. The rocks are greywacke slate of the usual colors: olive, reddish-purple, &c. and quartz rock of a granular composition occasionally. This latter rock has an extensive development, but no strata are visible, so deep is the covering of debris over both it and the slate. Very warm when in exercise, particularly in the ascents.

7th Jan.—Cloudy. Ujolee to Hurura $3\frac{1}{2}$ hours. A steep ascent at starting. Greywacke slate olive coloured. Wind round glen with quartz rock. Descend to stream and ascend. Greywacke slate-pass a third glen. Some fragments of green-stone. A very bad road to-day, and the march very fatiguing.

Both yesterday and to-day I fancied I observed traces of serpentine, in union not only with the slate, but with the quartz. rock. Nothing like a specimen of that rock, but slight impregnations; judged of more from color than any other test; see specimens to-day and yesterday. These two days we have entirely left the river* and ascended, it being at some distance to left. High peaks on its North bank. Passed under Goojroo-gurh this morning, where was a Goorkha post formerly. The plains are visible thence. Almost all the high ranges are deep in snow.

4 P. M. 25.775, 52, 46. Rainy.

8th Jan.—Rained all yesterday afternoon, a little hail. This morning fine, with some snow fallen on the high ridges, but not so much as I expected. At noon start for Jâk, about 3 or $3\frac{1}{2}$ hours. I delayed much on the road in consequence of the heat. Descend by a moderately steep road by nullah, small; bed full of debris, 50 feet thick at least. Channel cut out of the debris, greywacke slate, steeper ascent to ridge, greywacke slate and quartz rock. A mangoe tree near summit; say Bar. 26. Wind round glen in which are the following villages: Sonkut Bomun, Kotlee, and Hunera. From the second ridge, Indolee bears a little west of north. Ramgunga very tortuous just there, a longish stream joins it with rather a long course, and some level cultivated spots are seen in its bed. Budungurh river is left behind, a succession of small descents and ascents leading round small glens brought

* Ramgunga.

us through a small hamlet to Jâk, which is near the head of a glen watered by no very large stream. Phulsone is said to be in a north-east direction. Bhutronj in a south-east, latterly the slate more talco-argillaceous.

9th Jan.—Jâk to Doonpôt or Doonpo about 3 hours, a steep ascent of about three-quarters of an hour brought us to the ridge, a lateral one, which divides the Jâk glen from another belonging to the Ramgunga valley, in which are situated the villages of Phulson Kot, Ningrâlee Goojaree Gurhee, &c. Bar. at 12.45, 25.23 ; 52, 64, 42.

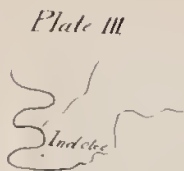
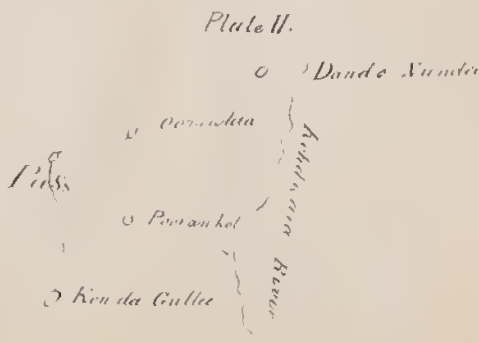
Sungoor Gurhee visible. Quartz rock is the prevailing rock, a singular type on this Pass, vide specimen. Descend from Pass and by a winding and moderately uneven path passing through Ningrâlee, reach the head of the glen at Doonpo Kôt to left. Sonkut is near. This glen contains a good deal of level ground, which is divided amongst the several villages. It has rather more length than the Jâk one ; nothing but quartz rock with occasional patches of greywacke slate.

10th Jan.—Doonpo to Joshee Khola, about three hours and a quarter, ascent of nearly an hour to Bheronj Khâl (*Bhutronj*, query ?) Bar. 9, 25.03 44, 37.5, 34.5. (*See plate No. III.*)

Nothing but quartz rock more or less argillaceous ; the Goojree peaks remarkable, a high ground ; they form North of the Ramgunga. This is the separating ridge of the two river* valleys, and it is remarkably low ; emanating from it is a much higher one of considerable declivity with little forest, on which are spread the villages of Phulson Kot, &c. Descend to Rânee Bâgh two hours nearly, fine mango grove, certainly not 1,000 feet below the Pass. This is the fourth example of mangoes growing extremely near a Barometrical pressure of 25°. Quartz rock every where, with occasional traces of greywacke slate, latterly micaceous slate.† Down the glen, beautiful morning, and

* The river vallies of the Ramgunga and Kosilla. These Goojree or Goojroo Peaks must not be confounded with those of the same name on right bank of the Ramgunga, situated in Gurhwal.—J. H. B.

† The pilgrims from Buddrinath and Kedarnath after leaving the high mountains, descend the Ramgunga, until they reach the Pass which separates the Kosilla from that river. From Rânee Bâgh on the Kosilla, they follow the river route to Dhikkolee and Chilkeea. These pilgrims do not seem to dread the Terrai climate, for they move down in July and August, the worst months of the year.—J. H. B.





tolerable road with rather picturesque scenery. Descend to the Peepul Punt glen and ascend to Joshee Khola, a small village. Turket is the other side of the high range that rises to S. E., which only separates two feeders of the Kosillah river.

18th Jan.—Joshee Khola to Dharee, 4 hours, about twelve miles. Descent passing by a village to river bed 40 minutes. The road then lies in the river bed, which for four miles presents a well cultivated and widish valley; a stony piece then intervenes for a few hundred yards, and then there is again an expanded bed, which continues with more or less interruption to a spot on the left bank, opposite to which commences the ascent to Dharee of about 30 minutes.

4h. 45m. Bar. 26.495, 60. 53.5, 44.5. Rocks, quartz rock at starting in bed of river, also with greywacke slate, which was I think oscillating towards micaceous schist, a bed of limestone observed at two places, most likely the same. It appeared as if a certain degree of transition took place, for the schist was more or less impregnated with lime according to its proximity to the limestone. The latter at first sight appeared part of the other rock, so little was there to remark in any thing like derangement or nonconformity of the strata. It was only by the hammer (and color) that the actual difference of the strata was to be detected. The limestone contained iron pyrites and veins of white carbonate. It strikes me, that valuable slabs might be found here.

The whole of the Ghagur* range, which here flanks the Kosillah, up is covered with the snow. There is a great change in the weather, which has in fact become inclement. A dreadful wind reigned the whole day; in the morning it was cutting.

12th Jan.—Thermometer $36^{\circ} 5'$ a little after sunrise. Dharee to Keoonsal 2 hours. Descend to bed of Kosillah and proceed along to Bhojhan at confluence of Koojgyra. Mujhera close to left bank of river. At Bhojhan leave the river and go up the Koojgyra. Latterly ascend to Keoonsal, rather steep.

Quartz rock at starting, a curious type (see specimen,) continued some distance. In the bed of the river observed fragments of the curious rocks formerly found near Mujhera. One single specimen of

* This is that portion of the magnificent Gaghur range in which Nynee Tal is embosomed.—J. H. B.

strata enabled me to determine the dip S. E., inclination about 10° . Quartz rock remarkable for the numerous parallel fissures in various directions. Latterly greywacke slate, but no good examples. 4 Bar. 26.32, 60, 56.5, 48.5.

13th Dec.—Keoonsal to Munnour 3 hours. Ascend ridge which overlooks the valley of the Suronta; descend obliquely to Kaggur Ghat, which is at the confluence of that stream with the Kosillah. A village, Nowgaon, a good deal of level ground here. The terrace apparently composed chiefly of granite boulders; cross the Kosillah, an easy winding ascent to Munnour, a small village. There is a curious arrangement here, a small peak is on the banks of the Kosillah, and round it is a valley, so that it appears isolated. I think the river must have once run there, and afterwards changed its course.

The transition from greywacke schist to micaceous schist becomes perfect I think in this march. The micaceous schist appears to dip N. W. 30° near Kaggur Ghat, at an inclination of 15° .

As the weather threatened change, went on in the evening to Chipila or Sipla 2 hours, micaceous schist. The strata dipping N. as near as could be determined on.

14th Jan.—Sipla to Almorah* 3 hours; easy descent to confluence of Sowal and Kosillah. Mica slate everywhere, strata dip here N. E. Bar. 9 A. M. 26.657, 52, 35, 33.

Easy ascent to Almora, giness or granite nearly the whole way. In the evening tried the temperature in 8 feet hole, air 52° . It was found 54.3, weather threatening snow.

* Almora is situated on the ridge which separates the Kosilla from the Suwol river. It is only on one side (the NNE.) that Almora can be reached or left without having to cross a suspension bridge over one or other of these rivers.—J. H. B.

NOTE.—It would appear that Capt. Herbert's specimens of this trip end with the mica slate and greywacke series of the Sowal and Kosilla, found up to the bridge over the former river, from which the Almorah ascent commences, and the gneiss and granite appear. No. 1883 $\frac{1}{2}$ being the closing number.

The M.S. Vol. from which this Journal has been copied, contains a diary from 14th January to 7th February, recounting nothing but dismal rainy weather, and ending with a fine fall of snow, and then fine weather.—J. H. B.

*Notes on Nerbudda Fossils. By Dr. G. G. SPILSBURY, H. C. M. S.
(With four plates.)*

[The Editors have again to regret a delay, for which they are, however, not responsible, in the appearance of this valuable paper and its plates. It has arisen from circumstances over which they have had no control, and which have been privately explained to Dr. Spilsbury, to whose invaluable assistance they again confidently look, now that he is on his old ground; and to whose labours they will spare no trouble or expence in doing full justice.—Eds.]

Herewith I have the pleasure to forward a farther series of notes and drawings in regard the Fossil Geology of the Nerbudda, and owing to circumstances over which I have no control, I much fear that this will be the last opportunity I shall have of placing on record any notice of this interesting pursuit, as long before you can receive this, I shall have quitted the Saugor and Nerbudda Agency.

Before leaving this part of the country, I wish to bring before the Society, as far as has come under my observation, specimens of the different bovine and bubuline class of animal fossils, wild and domestic, met with in these districts; for this purpose I have had a series of drawings made all to the same scale, and for which I am indebted to the very able pencil of former communications,

Plate No. 1, is the Bovine series.

A. Skull and horns of the *Bos Gaurus* of the wilds of the Nerbudda.
E. Ditto, of the domestic animal.

C. G. Two specimens of fossil horns, the one little exceeding in dimensions those of the present domestic animal, while the other surpasses in magnitude that portion of horn seen in the skull of B.

B. D. F. H. Specimens of skulls, all fossil. B. and F. having portion of horn attached; that of B. being entirely free from matrix shows the real size, but F. is incased in matrix, and therefore only an approximation to its dimensions can be made. The occipital view of H. exhibits the ridge so characteristic of *Bos Gaurus* of the present day.

Plate No. 2, the Bubuline series.

1a. Horns and os frontis of a wild buffalo from the Mekul Hills about Umurkuntuk, the source of the Nerbudda river.

2b. Skull and horns of another specimen; but in this only the osseous part of the horns remain, the whole of the horny portion having been removed; its locality is the same.

3c. The os frontis of a fossil buffalo, showing the massy breadth between the orbits so marked in this class.

4d. A particular fine fossil skull, and greater portion of horns of a buffalo lately brought in from this neighbourhood. To show its great size, I have added two other drawings, No. 3, on a much larger scale.

5e. Is the ordinary domestic animal.

At the bottom of No. 1, I have annexed three drawings of portions of fossil horns of deer as found on the Nerbudda, drawn upon a scale one-seventh of natural size, for comparison with the delineations by that eminent Zoologist Mr. Hodgson, one of them coming very near in its admeasurement to that figured in No. cxvii. of the Journal as *Cervus affinis*.

In consequence of the remark by Dr. Roth of the bovine specimen,* which he thought somewhat like the *Bos Grunniens*, and altogether a very extraordinary skull, I have now forwarded, in farther elucidation, three more drawings, two (No. 4) being an occipital and lateral view, to show the very small height of the skull, and No. 5, delineation of the teeth of the left upper jaw of their natural size; which I trust will fully show the peculiarities of this remarkable fossil.

With respect to the fossil B. No. 8, delineated in the cxvi No. of the Journal, which Dr. Roth considers as the lower jaw of a species of a *Palæotherium*, and suggests either more detailed drawings, or the specimen itself being sent down, I have to observe, that it is not forthcoming, having been sent either to the Museum of the Court of Directors, or else to Capt. Cautley. In No. 4, I have sent a drawing of a lower jaw since brought in, and which in my humble opinion, differs but little from the above, except in being more perfect and of larger dimensions, and which we had unhesitatingly classed as that of the Hippopotamus, the two last drawings; just below this jaw, *a. b.* are by far the finest and most perfect specimens of a skull of this now extinct animal, as far as India is concerned; *a.* showing the base of the skull with the teeth very perfect, and *b.* the flatness of the occiput, and also the strong bony roof of the orbit.

In conclusion, I beg to remedy an omission in my former notice; viz. that the whole of the fossils delineated in the 117th No., were from the extensive collection of Mr. Charles Fraser, Agent and Commissioner of these territories, whose zeal and industry in bringing to light these hidden treasures of a former age have been unremitting, but crowned with a success that will probably some day delight the eyes of Geologists in Europe. I scarcely need add, that the present series are from the same source.

Camp Dumoh, 6th December, 1841.

On the Specific Gravity of Sea Water. By J. MIDDLETON, Esq.

C.S. F.G.S.

SIR,—I have the pleasure to send a few observations on the specific gravity of sea water, made during part of my late passage to India round the Cape of Good Hope. I regret much, that derangement of my

* Journ. As. Soc. No. cxvi. page 627.





1a

Wild



2b

Wild



Fossil



4d

Fossil



5c

Domestic



Scale of one-tenth to an inch

1 Ramusda capo. Fossil. 1a

2. Ramusda capo. Fossil. 2b

3. Ramusda capo. Fossil. 3c

4. Ramusda capo. Fossil. 4d

5. Ramusda capo. Fossil. 5e

Fossil Buffle Head No 2 Figure 1.
on an enlarged scale

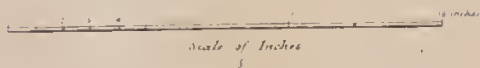
153



A few ribs and head as seen in



Oxyptilium



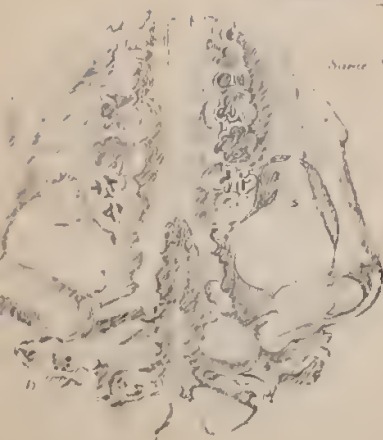
Lateral view of Plate F Fig. a b
Ammono Journal N° CXVI

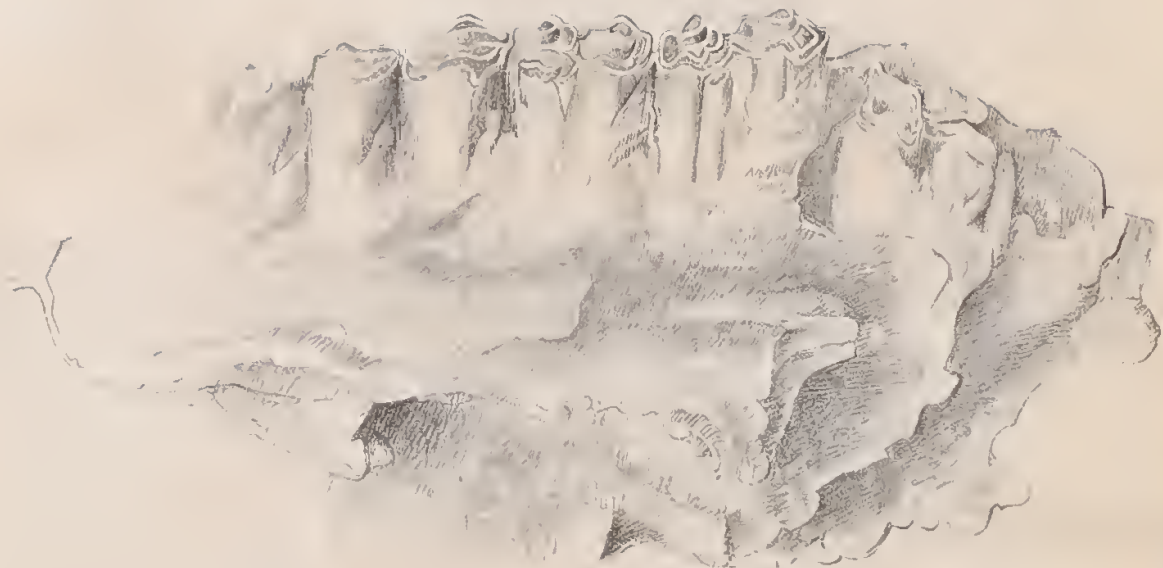


a

Same Scale as above

b





Natural size of Toth
Plate I figure a of N^o CVI or A.S. 52
Astoria Journal

hydrometer prevented the continuance of my experiments to, at least, our farthest Southing.

The hydrometer used by me was of great delicacy, and was made for the express purpose under my directions: hundredths, the zero point being of distilled water, 1000 could be ascertained with ease when the ship was very steady, but as this was not frequently the case, I was content to record in my ordinary experiments, only tenths. As the temperature of the sea rose much higher than I had anticipated, the range of my instrument was insufficient, although I managed to extend it. Any person desirous of pursuing similar investigations on the same field, should be provided with a hydrometer ranging from 1022.5 to 1028.0.

Before I had completed my experiments for ascertaining the law of decrease of specific gravity with increase of temperature, my hydrometer became unfortunately useless, so that I have not entire confidence in my results. My doubts in that regard would have been less, did not the law inferable from my experiments differ so greatly from that to which the varying gravity of distilled water under change of temperature seems subject. As I am not aware that the law alluded to has been previously observed, I deem it worthy of statement and explanation here, as well for its own intrinsic interest as for the connection it may be found to bear with the development of heat and electricity, relations which I have not the opportunity and facilities at present to consider. For this purpose I shall quote from the tables of specific gravity given by Berzelius, *Lehrbuch der Chemie*, 1843, p. 382, (the two left hand columns are those quoted.)

<i>Temperature Cen- tigrade.</i>	<i>Greatest density l.</i>	<i>Differences, First order.</i>	<i>Differences, Second order.</i>
16	0.9992260		
17	0.9989752	0.0001508	
18	0.9988125	0.0001627	0.0000119
19	0.9986387	0.0001738	0.0000111
20	0.9984534	0.0001853	0.0000115
21	0.9982570	0.0001964	0.0000111
22	0.9980489	0.0002081	0.0000117
23	0.9978300	0.0002189	0.0000108
24	0.9976000	0.0002300	0.0000111
25	0.9973587	0.0002413	0.0000113
26	0.9971070	0.0002517	0.0000104
27	0.9968439	0.0002631	0.0000104
28	0.9965704	0.0002735	0.0000104
29	0.9962864	0.0002840	0.0000105
30	0.9959917	0.0002947	0.0000107

The numbers in the last column suggest the probability, that those in the adjoining column whose differences they are, increase by arithmetical progression. The differences between the former numbers themselves, sometimes in excess, sometimes in defect, with respect to such as have nearly the same situation in the scale, are attributable to errors of observation. With respect to numbers having remote situations on the scale, their differences obviously decrease with increase of temperature, a fact which would have been still more obvious, had I introduced more of the table than I have deemed it necessary to do. This, however, was to have been expected from the increased capacity of the bottle by augmentation of temperature, if the process for ascertainment of the specific gravities quoted were weighing, or the greater buoyancy from the same cause, were a floating hydrometer used. I am inclined, therefore, to disregard this decrease, and doing so, I take the average of the differences, which I find to be 111. Resuming the preceding table and adopting this ratio, we have Temperature.

16	0.9991260	=	A		
17	0.9984852	=	A—d.	(d.0001508)	= B
18	0.9988133	=	B—	(d + v) when v.=0000111	= C
19	0.9986403	=	C—	(d + 2v)	= D
20	0.9984562	=	D—	(d + 3v)	= E
21					
30	0.9960037*	=	D—	(d + 13v)	

This gives the *n*th term, commencing with any one A in the scale, as follows:—

$$N. A-n-1. d-(v + 2v + 3v + \dots n-2v.)$$

It will be understood that I have preferred examining the part of the table above quoted on account of the analogy in point of temperature to conditions of my own experiments. I have stated above, that the law of variation of density with change of temperature in sea water, seems to differ from that in distilled water. As has been shown, the latter involves a function of a constant difference and a difference by progression, while so far as my experiments go, the former consists of the constant difference alone. Those experiments were made on water varying in temperature from 60° to 70° of Fahrenheit, and indicated a decrease of sp. gr. of 1880 for each additional degree of temperature. Hence the general term, commencing as before would be

$$A-n-1 d.$$

According to this the corrections given in the fourth column of the following table have been made.

* The observed quantity is .9959917; the difference is + .0000120, a quantity too small, I apprehend, to cast a doubt upon this general law.

Specific gravity of Sea Water from 47° 28' N. Latitude to 18° 11' S. Latitude.

Date.	Temp.	Sp. gr.	Reduced. Sp. gr.	Latitude N.	Longitude W.
				° ' /	° ' /
Sept. 16	65.8	1026.2	1027.290	47 28	7 26
17	66.5	1026.3	1027.522	46 42	8 3
18	68.3	1025.6	1027.160	44 53	8 16
19	66.0	1026.2	1027.328	44 6	8 57
20	65.9	1026.0	1027.109		
22	69.9	1026.3	1028.161	38 46	14 21
23	71.8	1026.3	1028.578	36 29	16 16
24	73.7	1026.4	1028.976	30 42	17 32
25	73.8	1026.4	1028.994	31 12	18 15
26	74.6	1026.3	1029.045	28 36	19 17
27	75.5	1026.5	1029.414	25 19	20 50
28	77.7	1026.1	1029.428	21 52	22 50
29	79.0	1025.9	1029.472	18 46	24 59
30	81.2	1025.2	1029.186	15 33	25 51
Oct. 1	82.1	1024.6	1028.810	12 23	24 00
2	84.0	1024.2	1028.712	11 4	23 13
3	83.6	1024.4	1028.837	10 29	23 00
4	84.0	1024.2	1028.712	9 3	22 21
5	84.0	1024.2	1028.712	8 17	22 00
6	84.5	1024.1	1028.706	7 39	20 57
7	84.4	1023.9	1028.487	6 59	20 28
8	84.4	1023.9	1028.487	6 8	20 2
9	81.8	1024.4	1028.498	4 48	18 51
10	81.5	1024.5	1028.542	3 42	17 5
11	81.5	1024.5	1028.542	3 42	17 5
12	80.1	1024.6	1028.379	3 11	17 1
13	80.1	1024.6	1028.379	2 37	17 21
14	79.0	1025.2	1028.772	1 56	16 37
15	79.0	1025.2	1028.772	0 47	18 34
16	78.8	1025.4	1028.934	0 51 S.	20 31
17	78.6	1025.5	1028.997	3 2	23 6
18	78.6	1025.5	1028.997	5 44	24 51
19	77.8	1025.7	1029.046	9 4	26 23
20	77.1	1026.0	1029.215	13 6	27 18
21	76.7	1026.4	1029.540	16 0	27 15
22	76.5	1026.5	1029.602	18 11	27 3

The above table requires but little comment; the less perhaps as some doubt attaches to the perfect accuracy of specific gravities reduced for the same temperature, in which condition only do they admit of just comparison. It is however obvious, that the gravity of sea water increases, as might be anticipated, with the distance from the land; and that that, increase continues in the present case up to 18° 36' North latitude, when a decrease again takes place till near the equator. It then begins to rise with increase of Southing until at the point where

my hydrometer became useless, it had attained its maximum. If we take corresponding limits north and south, for instance $18^{\circ} 11'$ south and $18^{\circ} 46'$ north, we have the specific gravities as 1029.106 : 1028.717, nor will this deduction be materially affected by any error that may possibly exist in the law of expansion. The withdrawal of fresh water by congelation in high south latitudes is perhaps sufficient to account for the fact, especially as there is probably no source of compensation—unless that of the solution of ice by the heat of volcanic fires, which would I apprehend, be insufficient. The effect of the sun is only felt on the outskirts of winter, and the ice that is broken up then, rather than melted, is drifted to the north, where the heat of the air, or perhaps rather that of the water, is sufficient to dissolve it. From the two-fold cause of greater density and lower temperature, are currents produced towards the equator, serving to sustain that condition of the waters of the ocean no doubt necessary, and therefore securely provided for, to the health of organic life, marine and terrestrial.

I am, your obedt. servant,

J. MIDDLETON,

F. G. S. &c. &c.

December, 1844.

Proceedings of the Asiatic Society for the month of SEPTEMBER, 1844.

The usual Monthly Meeting was held at the Society's rooms on Wednesday evening the 4th September, H. Torrens, Esq. Vice President and Secretary in the Chair.

Captain W. L. Mackintosh, B. N. I. proposed at the last Meeting, was ballotted for, and being declared duly elected, the usual communication was ordered to be made to him.

The following gentlemen were proposed as Members :—

J. Owen, Esq.—proposed by H. Torrens, Esq. Vice President, seconded by H. Piddington, Esq.

A. C. Barwell, Esq. C. S.,—proposed by H. Torrens, Esq. Vice President, seconded by Lieut. Colonel Forbes.

As Corresponding Member,—Dr. McGowan, Medical Hospital, Ningpo,—proposed by the Revd. J. Long, seconded by S. G. T. Heatley, Esq.

The following list of books presented was read :—

1. The Meteorological Register for July 1844.—From the Surveyor General's Office.

2. Athenæum for June the 8th, 15th, 22nd, and 29th, 1844.—From the Editor.

3. The Calcutta Christian Observer for September, 1844.—By the Editors.

4. The Oriental Christian Spectator for August, 1844.—By the Editor.

5. Proceedings of the Botanical Society of London, Vol. 1, part 1.—By the Society.

6. Proceedings of the Royal Irish Academy for the year 1841-2, part 6th.—By the Society.

7. Proceedings of the Royal Society of Edinburgh for December 1841 and January 1842, Nos. 10 and 20.—By the Society.

8. Annuaire du Bureau des Longitudes 1844.—By the Bureau.

9. *Connaissance des Temps*, avec additions 1843, 1844 and 1845.—By the Bureau.

10. Transactions of the Royal Society of Edinburgh, vol. 15th, part 2nd.—By the Society.

11. *Memoires de la Societe de Physique et d'Histoire Naturelle de Geneve*, 1841-2.—By the Society.

12. Transactions of the Royal Irish Academy, vol. 19, part 2nd, 1843.—By the Society.

With reference to the presentation of the volumes by the Royal Irish Academy, it was ordered that the Journal of the Society should be sent to them, and that the Librarian should be requested to ascertain and report if any reciprocation had formerly taken place.

Read the following Circular, with the accompanying letters and resolutions of the Committee of Papers :—

No. 1.—The Secretary with reference to the annexed resignation of the Honorable the President, requests the attendance of Members of the Committee of Papers at a special meeting, to be holden at the rooms on Tuesday morning the 3rd September 1844, at $\frac{1}{2}$ past 10 A. M.

H. PIDDINGTON,

Sub-Secretary.

30th August, 1844.

No. 2.—To H. W. TORRENS, Esq. *Secretary Asiatic Society.*

SIR,—Being on the eve of my departure from India, I beg leave to place in your hands my resignation of the office of President of the Asiatic Society, and to request, that in laying it before the Committee of Papers for communication to the next general meeting, you will be so kind as to express my sincere thanks for the gratification which my connexion with it has always afforded me, and my best wishes for the success of its labors, and the continuance of its credit and celebrity throughout the scientific world.

I have the honor to be, Sir,

Calcutta, August 20, 1844.

Your most obedient humble servant,

W. W. BIRD.

No. 3.—At a Meeting of the Committee of Papers held at the Society's rooms on Tuesday the 3rd September, at half-past 10 A. M.

Present:—Lieutenant Colonel Forbes; Charles Huffnagle, Esq.; Rev. J. Hæberlin; F. G. S. Heatley, Esq.; Lieutenant A. Broome, B. A.; H. Torrens, Esq. Vice President and Secretary,

Resolved.—That it be proposed to the Society at the meeting, that measures be taken to ascertain whether the Right Honorable the Governor General would be inclined to take the office of President.

2. That it be also suggested to the Society, that the Honorable Mr. Bird, our late President, be requested to sit for his Picture on his arrival in England, in order that it may be placed in the room of Meeting, as a memento of the gratitude of the Society to him, for his steady and valuable maintenance and support of its interests in all respects, both as President and as Member during thirty-three years.

3. That it be also recommended to the Society, that the charge for the Portrait be put to the head of charges general.

H. TORRENS, *Vice President and Secretary.*

After some discussion, the recommendations of the Committee of Papers were adopted.

Read the following letters and statements of Accounts from Messrs. Allen and Co. the Society's London Agents and Booksellers, with reply to them from the Secretary:—

HENRY TORRENS, Esq. *Secretary to the Asiatic Society of Bengal.*

SIR,—We have the pleasure to hand you herewith our account current with the Society for the year ending the 30th June last. The balance is £51 : 12 : 9 in favor

of the Society. This amount we propose to retain in part payment for the bust of Mr. B. H. Hodgson, which you have commissioned us to get executed. In the event of your wishing the accounts kept separately, we shall be happy to honor your draft, at 3 months' sight, for the balance now stated to you. We shall then draw upon the Society, as we were instructed, for whatever we may pay, on account of the bust.

Dr. Busch of Bremen, has written us to say, that he has consigned a box of shells to our care for the Society, and we are requested to forward the same to Calcutta, as soon as it reaches us. This we shall attend to. In our next letter we shall be able to say how the box has been forwarded.

We have the honor to be, Sir,

Your most obedient servants,

London, July 2nd, 1844.

WM. H. ALLEN AND CO.

DR. . . *The Asiatic Society, Calcutta, in Account with Wm. H. Allen and Co. . . CR.*

	On hand June 30, 1843.	Recd. since.	On hand June 29, 1844.	Sold.	Per Copy.	
Asiatic Researches. vol. 15, 4to. sewed, ..	19	0	19	0	24	0 0 0
Ditto, vol. 16,	9	0	8	1	0	1 4 0
Ditto, vol. 18, pt. 1,	5	0	4	1	12	0 12 0
Ditto, vol. 18, pt. 2,	8	0	8	0	0	0 0 0
Ditto, Index to first 18 vols.	20	0	19	1	0	0 12 0
Ditto, vol. 19, pt. 1,	31	0	28	3	0	1 16 0
Ditto, vol. 19, pt. 2,	38	0	34	4	0	2 8 0
Ditto, vol. 20, pt. 1,	29	0	27	2	0	1 4 0
Ditto, vol. 20, pt. 2,	37	0	33	4	0	2 8 0
Amis-ul-Musharahin, 4to. sewed, ..	3	0	3	0	12-10	0 0 0
Futwa Alemgiri, vol. 1, royal 4to. ..	1	0	1	0	24	0 0 0
Ditto, vol. 2,	1	0	1	0	0	0 0 0
Ditto, vol. 3,	3	0	3	0	0	0 0 0
Ditto, vol. 4,	4	0	4	0	0	0 0 0
Inayah, vol. 3, 4to.	1	0	1	0	0	0 0 0
Ditto, vol. 4, 4to.	32	0	32	0	0	0 0 0
Kifayah, vol. 3, 4to.	6	0	5	0	0	0 0 0
Ditto, vol. 4, 4to.	5	0	29	0	0	0 0 0
Mahabharata, vol. 1. royal 4to.	6	25	32	2	0	2 8 0
Ditto, vol. 2,	8	25	34	1	0	1 4 0
Ditto, vol. 3,	11	25	52	2	0	2 8 0
Index to ditto, 4 parts,	20	50	20	*16	5-8	4 10 8
Ditto, part 4,	20	0	3	0	0	0 0 0
Naishadha Charita,	3	0	21	0	12	0 0 0
Raja Tarangini, comp. 1 vol. royal 4to. sd.	21	0	1	0	20	0 0 0
Susruta, vol. 2, 8vo. sewed... ..	2	0	5	1	7-2	0 7 2
Tibetan Dictionary, 4to. sewed, ..	5	0	21	0	20	0 0 0
Mahabharata, vol. 4, royal 4to.	0	25		3	24	3 12 0

£24 13 10

Sundry Advertising, £1 18 0
Commission 5 per cent. 1 4 8

3 2 8

* Distributed.

1 Index to Mahabharata, 4 p. to Library E. I. H.

1 Ditto ditto to Professor Wilson.

1 Mahabharata, vol. 4, to Professor Wilson.

£21 11 2

London, July 2, 1844.

E. E.

WM. H. ALLEN, AND CO.

DR... *The Asiatic Society, Calcutta, in Account with Wm. H. Allen and Co...* CR.

For Journal of the Asiatic Society.						No. of Copies received.	On hand June 29, 1844.	Sold.	Per Copy.	
No. 133, ..	....	....	....	....	....	50	16	*22	2-9	£3 0 6
— 134, ..	....	....	....	....	....	50	18	20	..	2 15 0
— 135, ..	....	....	....	....	....	50	17	21	..	2 17 9
— 136, ..	....	....	....	....	....	50	19	19	..	2 12 3
— 137, ..	....	....	....	....	....	50	18	20	..	2 15 0
— 138, ..	....	....	....	....	....	50	16	22	..	3 0 6
— 139, ..	....	....	....	....	....	50	20	18	..	2 9 6
— 140, ..	....	....	....	....	....	50	21	17	..	2 6 9
— 141, ..	....	....	....	....	....	50	24	14	..	1 18 6
— 142, ..	....	....	....	....	....	50	25	13	..	1 15 9
										25 11 6
Advertising, Portage, Booking, Postages, &c. ....						....	....	£2 7 0		
Commission 10 per cent. ....						....	....	2 11 2		4 18 2
<i>London, 2nd July, 1844.</i>						E. E.				£20 13 4

WM. H. ALLEN AND CO.

* *Distributed as under:—12 Copies each, No. 133 to 142, Professor Wilson, Editor Asiatic Journal; Royal Society; Royal Asiatic Society; Edinburgh Philosophical Journal; Royal Institution; Philosophical Journal; Athenæum; Baron Von Hammer Purgstall; Royal Society of Edinburgh; Spectator; Professor Schlegel.*

DR. .. *The Asiatic Society, Calcutta, in Account with Wm. H. Allen and Co...* CR.

June 30, 1843.	To Balance of Account stated,	13 18 3	Feb. 17, 1844.	By Cash per Murray, Amount of sale of "Journal" carried here as per letter received from H. Torrens, Esq. dated Sept. 5, 1813. ..	21 0 9
	Sundries duty on Mahabharata per City of Poonah and Shipping expences on various packages received to forward as per statement herewith, ..	30 6 3			32 17 0
	To Balance,	51 17 9	June 29,	Account sale of Oriental works as per statement herewith, Account Sale of Journal of the Asiatic Society as per particulars enclosed, ..	21 11 2
		£96 2 3			20 13 4
					£96 2 3
				By Balance,	£51 17 9

London, 2nd July, 1844.

E. E.

WM. H. ALLEN AND CO.

HENRY PIDDINGTON, Esq.

SIR,—Your letter dated the 16th April, enclosing a bill of lading for a case forwarded by the *John Fleming*, for the Société Royale d'Agriculture de Lyons, has been received, and on the arrival of that vessel, the needful shall be done with it.

SEPT. 1844.]

Proceedings of the Asiatic Society.

LXXXIX

The Journal of the Asiatic Society shall likewise be regularly forwarded to the Society at Lyons.

We are, Sir,

Your faithful servants,

London, July 2nd, 1844.

WM. H. ALLEN AND CO.

MESSRS. W. H. ALLEN AND CO. *Leadenhall Street, London.*

DEAR SIR,—I have the pleasure to acknowledge the receipt of your letter, dated the 2nd July last, covering your account current with the Asiatic Society of Bengal closed to the 30th June last, exhibiting on that date a balance of £51 : 12 : 9 in its favor, together with averages of books. All these have been on examination found correct and satisfactory, and I am desirous to say, that the Society approves of your intention to retain the amount in part payment for the bust of Mr. B. H. Hodgson, which you have been commissioned to get executed. To this sum you will please add £9 : 19 : 2, being sale proceeds of Journals up to No. 133, sold by you, on my individual account, agreeably to your averages rendered in your letter of the 30th January 1844, making together £61 : 11 : 11, but deducting therefrom £2 : 19 : 6, being the value of a set of bills drawn by me on you in favor of Mr. Bartlett, per advice of the 9th August last, which will leave a total of £58 : 12 : 5, disposable for the bust in question.

You will please convey to Dr. Busch of Bremen, the thanks of the Society for the box of shells, which on coming to hand, will be more suitably acknowledged.

I am, &c.

5th October, 1844.

HENRY TORRENS.

Read the following letter from Baboo Hurreemohun Sen, in reply to the V. P. and Secretary's letter of 9th August:—

To H. TORRENS, Esq., Vice President and Secretary, Asiatic Society.

DEAR SIR,—In acknowledging the receipt of your very kind letter of date the 9th instant, conveying to me and the other members of my late father's family, the many expressions of regret and sorrow felt by the Society at his lamented death, I have to apologize much for the delay which, owing to circumstances over which I had no control, has been incurred in my doing so.

Allow me and the rest of the family to return you and all the other Members of that noble institution, our heartfelt thanks for their kind condolence on this occasion, and to assure you, that we highly appreciate, and are grateful for, their kind sympathy in our present distress, and more especially for the sincerity with which it is expressed. The contents of your letter, Sir, have afforded us a great consolation ; a consolation which, at such a time as this, is so much needed, and which, coming as it does, from so highly respectable a body of gentlemen, cannot fail to serve as a soothing balm to our painful hearts. It indeed gives a melancholy gratification to our mind to know,

that his loss is so deeply felt and regretted, and his services acknowledged in so very strong terms by those who form a Society which, in point of importance, value and respectability, is the first in the country, and with whom he laboured hand in hand to promote its object for many many years. Fully aware as we are of the painful feeling which this mournful event must have excited in the minds of his late colleagues in the Society, and feeling proud of such a participation, on their part, in the grief we have experienced on account of it, we cannot but be gratified by the conviction which your letter so forcibly conveys to our mind, that his services to the Society and his good qualities had so much endeared him to them, and been conducive to the interest of the institution to such a degree; and in conclusion, we beg to express our feelings of gratitude to them for so valuable a record of the opinion of his career, as well as of his talent and public and private virtues generally, a record which we shall always preserve in the family with pride and pleasure, and to remain,

Dear Sir,

Your most faithful and humble servant,

Bank of Bengal, 29th August, 1844.

HOREEMOHUN SEN.

The Secretary stated, that he had received a private note from Dr. Campbell, stating, that as authorized by the Society, a brick monument had been built over the grave of Mr. Csoma de Koros, and requesting that a marble slab might be sent up with an inscription for insertion in the space left for it. An elevation of the monument accompanied the letter. The tablet was ordered as requested.

Read the following extract of a private letter to the Secretary, from G. T. Lushington, Esq. C. S. :—

H. TORRENS, Esq. *Secretary of the Asiatic Society, Calcutta.*

MY DEAR TORRENS,—I got up the other day one of the Society's Sanscrit Works, the "Naishada Kabya," 1 vol. price 6 Rs. for a native here, who says that it is incomplete, being only half of the original. Can you tell me whether there is another volume also printed, completing the work, and if there is, would you kindly send it me per dāk bhāngy, or make it over to my agents, Gunter and Greenaway, who will pay the expences.

G. T. LUSHINGTON.

After some conversation it was ordered, that the subject of the printing of the second volume of the Naishada be referred to the committee of Papers for report.

Read the following letter from the Secretary to Government, North West Provinces:—

No. 715.

FROM J. THORNTON, ESQ. *Secy. to Government N. W. P. to Secy. Asiatic Society, Calcutta, dated Agra, the 6th August, 1844.*

General Department.

SIR,—I am desired to place at the disposal of the Asiatic Society, and for publication in the Journal, the accompanying Note, regarding the Navigation of the Nerbudda River, compiled from such information as could be found on the records of this Government, by Mr. A. Shakespear, the Assistant Secretary.

2nd. In the reduction of the map to a size more suitable for publication, the names which are underlined should be retained, as they are mentioned in the Memoir, and are essential to a right understanding of the subject. To prevent mistakes, a separate list of them is annexed, arranged as they occur in proceeding down the stream from East to West. As many more names as is conveniently practicable should of course be inserted, but these ought not to be omitted.

I have the honor to be, Sir,

Your most obedient servant,

J. THORNTON,

Agra, the 6th August, 1844.

Secy. to Govt., N. W. P.

The map, which is a splendid one on a scale of 16 miles to an inch, and forms a roll 8 feet in length, was exhibited.

With reference to the names, it was stated by the Sub-Secretary, that arrangements had been made (by numbering,) so that *all* the names would virtually be inserted in the reduced map for the Journal.

Read the following correspondence on the subject of the Madras Meteorological Registers applied for by the Society:—

No. 403.

From T. R. DAVIDSON, ESQ. *Offg. Secy. to the Govt. of India, to H. TORRENS, ESQ. Secy. to the Asiatic Society, Calcutta, dated the 27th July, 1844.*

Home Department.

SIR,—With reference to your letter without date, received in July 1843, I am di-

<p>To Secy. to Govts. of Bengal, &c. No. 178, dated 22d July 1843; from Secy. to Govt. Fort St. George, No. 199, dated 6th July 1844, with enclosure to ditto, dated 27th ditto.</p>	}	<p>rected to transmit for the information of the Asiatic Society, a copy of the correspondence specified in the margin.</p>
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I am, Sir,

Your obedient servant,

T. R. DAVIDSON,

Council Chamber, the 27th July, 1844.

Offg. Secy. to the Govt. of India.

No. 51.

To J. F. THOMAS, Esq. Secy. to Govt. Fort St. George.

Home Department, Marine.

SIR,—I am directed to transmit the accompanying copy of a letter from the Secretary to the Asiatic Society, and to request, that you will, with the permission of the Most Noble the Governor in Council of Fort St. George, issue the necessary orders to cause that Society to be furnished direct with the information therein required.

I have, &c.

(Signed)

T. R. DAVIDSON,

*Fort William, the 22d July, 1843.**Offg. Secy. to the Govt. of India.*

The same to the Governments of Bengal and Bombay.

No. 199.

From J. F. THOMAS, Esq. Secy. to Govt. of Fort St. George, to the Secy. to Govt. of India, dated 6th July, 1844.

Home Department.

SIR,—With reference to Mr. Secretary Davidson's letter of the 22d July, 1843, I am directed to forward copy of one from Lieutenant Elliot at Singapore, under date 25th April last. As it would appear, that Lieutenant Elliot's establishment is not equal to any extra labour, and that the whole of the observations required by the Asiatic Society will, "soon be published in England," the Most Noble the Governor in Council, submits for the consideration of the Government of India, that the Asiatic Society should for the present receive, as proposed by Lieutenant Elliot, only a copy of the mean results, and that instructions to this effect be issued.

I have, &c.

(Signed)

J. F. THOMAS,

*Fort St. George, 6th July, 1844.**Secy. to Govt. Military Department.*

No. 292.

To the Military Secretary to Government, Fort St. George.

SIR,—In compliance with the Extract of the Minutes of Consultation of the 29th of August 1843, I have written to the Surveyor General of India, to forward all the copies of Magnetic and Meteorological Observations in his possession to the Secretary of the Asiatic Society, Calcutta. I hope that mean results will be considered sufficient for the present, since all the observations which are now sent to the Royal Society, will very soon be published. If I were to send complete copies of the Observations that I have the honor through you to send to the Hon'ble East India Company, the work would be just doubled, and it is as much as I can do with the aid of four assistants at the Observatory to complete the report without falling into arrears.

This will be understood if I just give an outline of the work at the Observatory: 12 instruments are observed every hour in the twenty-four, and registered in a rough observation book, from which they are entered in the day book, then abstracted in a book for the purpose, and finally fresh sheets are copied out, which are forwarded through you to the Hon'ble East India Company. Besides this, extra observations, the corrections of all the instruments, absolute determinations, the diurnal and hourly march of the instruments registered in curves; the anemometer papers and copies of our observations to all the Indian observatories, and I think it will be allowed that it

will be sufficient for the Asiatic Society for the present to receive the hourly and daily means of the instruments for the month.

Again, with reference to the tides, I send one complete copy of the curves described by the instruments, and the registry to the Hon'ble East India Company's Astronomer, Madras, for transmission through him to the Home Government, another complete copy I forward through the Honorable the Governor of the Straits to the Secretary to the Government of India, (Home Department.) Now if I might be permitted to make a suggestion, it would be to forward the remainder of the tides not yet dispatched, to the Secretary of the Asiatic Society, Calcutta, and those that have been already sent to Bengal to be handed over to him.

I hope I shall be excused in making these remarks, for it has appeared to me, that the Secretary to the Asiatic Society in calling for complete copies had neither an idea of the enormous additional labour that it would entail on the Observatories, (requiring for the purpose an extra assistant constantly copying,) nor that the whole of the observations would ultimately be published in England.

I intend to write to the same effect to the Secretary to the Asiatic Society, but I shall defer forwarding any abstracts until I have on this subject the opinion of the Most Noble the Governor in Council.

I have, &c.

Singapore, 25th April, 1844. (Signed) C. M. ELLIOT, *Lieut. Engineers,*
Superintendent Magnetic Observatory.
(A true Copy.)

(Signed) J. F. THOMAS,
Secretary to Government.

No. 380.

To J. F. THOMAS, Esq *Secretary to Government, Fort St. George.*

Home Department, Marine.

SIR,—I am directed to acknowledge the receipt of your letter No. 199, dated the 6th instant with its enclosure, and to state, that for the reasons assigned by the Superintendent of the Magnetic Observatory at Singapore, the Governor General in Council concurs in opinion with the Most Noble the Governor in Council of Fort St. George, that the Asiatic Society at Calcutta should receive, as proposed by Lieut. Elliot, only a copy of the mean results of the Magnetic and Meteorological Observations, instead of copies of the entire observations. The necessary communication on the subject will be made to the Secretary to the Asiatic Society at Calcutta.

I have, &c.

Fort William, the 27th July, 1844. (Signed) T. R. DAVIDSON,
Offg. Secy. to the Govt. of India.
(True Copies.)

T. R. DAVIDSON,
Offg. Secy. to the Govt. of India.

Ordered, that it be explained that the Society, fully sensible of the steady desire of Government to forward its views in all matters of utility, was

only desirous of such mean results, or details as could be afforded without inconvenience.

Read the following letter :—

No. 2,037, of 1844.

From F. CURRIE, Esq. Secretary to the Govt. of India, to the Secy. to the Asiatic Society, dated Fort William, 24th August, 1844.

Foreign Department.

SIR,—By direction of the Governor General in Council, I have the honor to transmit to you for such notice as the Society may deem it to merit, the accompanying copy of a report by Mr. B. Woode, of his proceedings during his late Tour on the Naga frontier.

I have the honor to be, Sir,

Fort William, the 24th Aug. 1844.

Your most obedient servant,

F. CURRIE,

Secy. to the Govt. of India.

The paper was referred to the Editors of the Journal.

Read the following letter addressed under orders of the Meeting of July, (see proceedings,) to the Secretary to the Government of Bengal with its reply :—

The Secretary to the Government of Bengal, Home Department.

SIR,—By desire of the Honorable the President and Committee of Papers of the Asiatic Society, and in pursuance of a resolution passed at the Meeting of the 3d instant, I have the honor to request, that you will be pleased to submit to the Honorable the Government of Bengal, the accompanying specimen pages and certificates relative to a proposed Sanscrit Dictionary in Bengali characters, to be entitled the *Sabda Ratnakar*, the author of which is Baboo Goorooopresad Roy, a Pundit of much eminence, and for which he, as well as the Asiatic Society, respectfully solicit the support and patronage of Government, to enable him to carry it through the press. A copy of the Baboo's letter to the Society will be found with the certificates, and the resolution of the Asiatic Society in reference to it is noted in the margin.

The Society would desire respectfully to represent to H. H. that the work is one of immense labour, and will be of the highest utility to Bengalee students of Sanscrit, comprising as it does in itself, the essentials of several other works now only existing in MSS., and expensive and difficult to obtain, and that thus it will be in an educational point of view of most essential service to the native community, and that the Society indeed would have been happy to have given it a larger share of support, could it with reference to existing engagements and claims have done so, and were the work one of a higher, and more classic standard.

It begs further, with deference, to suggest, that the Government might probably with much public advantage confer copies of it, when published, as prizes in the Public Colleges, for which purpose it is a work most excellently adapted.

I am desired to add, in conclusion, that the Society is not aware of any modern work in Sanscrit literature which has appeared for many years, better deserving the sup-

port of the Government of India, with reference to purposes of practical utility in the study, (with the native community,) of a language so important to them.

I am, Sir,

Asiatic Society's Rooms, 12th July, 1844.

H. TORRENS,
V. P. and Secy. Asiatic Society.

No. 582.

From the Under-Secretary to the Govt. of Bengal, to H. TORRENS, ESQ. Secretary to the Asiatic Society, dated Fort William, 27th August, 1844.

Education.

SIR,—I am directed to acknowledge the receipt of your letter, dated the 12th ultimo, and to state, that the Deputy Governor regrets that the Government cannot subscribe for any copies of the proposed Sanscrit Dictionary, specimen pages of which accompanied your communication.

I have the honor to be, Sir,

Your most obedient servant,

CECIL BEADON,

Under-Secretary to the Government of Bengal.

Read the following letter from Mr. W. C. Colton, Assistant Librarian, presenting a mummied hand and curious knot of a tree, (forming, naturally, the figure of an animal,) to which it refers:—

To H. PIDDINGTON, ESQ. Sub-Secretary, Asiatic Society.

SIR,—I beg leave to present to the Asiatic Society's Museum, the accompanying hand, taken from an Egyptian Mummy in one of the pyramids near Cairo, and supposed to be about three thousand years old.

Also, a curious specimen of a knot taken from a tree, in the Island of the Mauritius, in the year 1840.

I have the honor to be, Sir,

Your obedient servant,

Calcutta, 11th September, 1844.

W. C. COLTON.

Read the following letter from the Rev. J. J. Moore, Secretary Agra School Book Society to the Sub-Secretary:—

No. 239.

MY DEAR SIR,—I am happy to say that the two boxes of books have reached me in safety, with the exception of 9 which are injured by water and have to be rebound, however this matters little. The books for the Maharaj of Jodhpore, I have forwarded to the Political Agent, Capt. French. The cost of them I shall remit to you so soon as realized.

The bill against the Society I hope to remit a draft for, at the close of the month. I am much obliged to you for the kind trouble you have taken.

Believe me, your sincerely,

15th August, 1844.

J. MOORE.

Read the following letter from Dr. Mouat:—

To H. TORRENS, ESQ.

MY DEAR TORRENS,—Would the accompanying articles be of any use to your Museum? Intrinsically they are of no value, but as they were both brought from the field of Punuiar, they may be esteemed worthy of preservation. The matchlock was

taken from a Mahratta by a soldier of the Queen's 50th at Punniar, who I believe bayoneted him. The ball was one fired from the Battery stormed by the 50th, and fell within a foot of my brother, who had it picked up and preserved as a relic of the fight.

I am collecting, or rather attempting to do so, a small Mineralogical and Geological Museum for the Medical College, and have sent home for a complete set of European specimens, classified and arranged, which I hope will arrive here shortly.

Do you think the Asiatic Society would object to make over to us any triplicate or quadruplicate specimens which may not be worth preserving by them, and are not of sufficient value to send home; for we must be moderate in our expectations, and be content with small beginnings. I hope ultimately to see complete courses of Geology and Mineralogy given in this College, that our Students may obtain some acquaintance with these highly interesting and in this country important branches of science.

Very truly yours

Medical College, 30th August, 1844.

FRED. J. MOUAT.

Resolved, that the Curator in the Geological and Mineralogical Departments be desired when the arrangements of the collections will admit of it, to assist Dr. Mouat's views.

The Sub-Secretary, as Curator, stated, that (see Journal Vol. X, p. 172, Proceedings for May 1841,) he had already pointed out to the Society, this as a very proper method of disposing of spare specimens.

Read the following letter from Dr. A. Sprenger, B. M. S. :—

To the Secretary of the Asiatic Society of Bengal, &c. &c. &c.

MY DEAR SIR,—I beg leave to send you an article for the Journal of the Asiatic Society. If you have plenty of space in your present number, I shall make it longer, adding passages which show from whence the Arabs obtained the principal articles of commerce, as for instance paper, which was manufactured at Samarcand, &c. Print this part, and let me know about the rest.

I am, your very faithfully,

Chinsurah, August 28, 1844.

A. SPRENGER.

The Secretary stated, that as the MSS. was much interlined, he had placed it in the hands of a good copyist, and would first return it to Dr. S. for his revision before placing in the hands of the printers.

The Curator Geological and Mineralogical Departments stated, that having been for the most part occupied in preparatory arrangements in the Laboratory, and having nothing of note to minute, he had deferred making any report for the present month.

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